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Submittal For Section 02075 and 02080

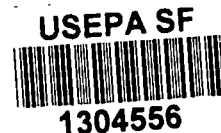
Asbestos Abatement

Lead Containing Paint Control Work Plan

**THEA FOSS AND WHEELER-OSGOOD
WATERWAYS REMEDIATION PROJECT**

June 8, 2003

Revised 8/29/03





Section 02080 –Asbestos Abatement

**ASBESTOS ABATEMENT WORK PLAN
Thea Foss and Wheeler-Osgood Waterways Remediation
City of Tacoma
Department of Public Works
300 Middle Waterway
Tacoma, WA**

Work Order No. DC2001
Specification No. G-253-03

Submitted To:

Manson Construction Co.

Mr. Robert Reller P.E. & Jayme Morris

PO Box 24067

Seattle, WA 98134

Main Office 1-206-762-0850 Site 253-627-7757

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Prepared by:



Performance Abatement Services, Inc.

422- S. Forest Street

Seattle, WA 98134

Telephone (206) 467-8733

Paul Hanway

AHERA Project Designer #1004920

Expires 4/17/2004



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

June 6, 2003 (compiled 8/29/03)

Manson Construction Company
PO Box 24067
Seattle, WA 98134

Attention: Jayme Morris
Robert Reller


RE: Asbestos Abatement Site Specific Work Plan
300 Middle Waterway Building
Tacoma, WA

Dear Mr. Reller and Ms. Morris:

This letter has been prepared to transmit our site-specific asbestos abatement plan for the above referenced project. This plan is part of our submittal for the project. The asbestos materials identified in the 3/8/1999 Orion Environmental Services' survey are: vinyl sheeting, gray felt backing, associated mastics; vinyl tile and associated mastics; cove base mastic; ceiling tile and mastic glue dots; sink undercoating; thermal system insulation; roofing material; skip sheeting and a fire door.

Performance Abatement Services, Inc. (PAS) is pleased to present this plan for your review prior to the starting the work at the site. Should you require any additional work please contact the undersigned. Your prompt attention to this review process is appreciated in advance.

Sincerely,
PERFORMANCE ABATEMENT SERVICES, INC.



Paul Hanway
Manager, Special Projects
AHERA Project Designer #1004920
Expires 4/17/2004



1.0 INTRODUCTION & SCOPE OF WORK

This hazardous materials abatement work plan presents the methods and procedures that Performance Abatement Services, Inc. (PAS) will employ in the abatement of asbestos containing materials (ACM) at one building for the purpose of demolition as a part of the Thea Foss and Wheeler-Osgood Waterways Remediation in Tacoma, WA. The project intent is to remove asbestos building materials prior to demolition of the building by RH Rhine Company and Manson Construction Company. The asbestos abatement work consists of removing: asbestos containing vinyl sheeting, gray felt backing, associated mastics; vinyl tile and associated mastics; cove base mastic; ceiling tile and mastic glue dots; sink undercoating; thermal system insulation; roofing material; skip sheeting and a fire door. This work will take place in 1 phase of the Manson Construction Company project.

This plan is part of the PAS submittal package. See separate Lead Containing Paint (LCP) Work Control Plan.

The work practices used in the removal include: controlled entry, employee exposure monitoring, proper protective clothing and equipment, training, procedures, clearance monitoring and waste disposal.

PAS has provided a PSCAA Notice of Intent to Perform Asbestos Abatement and the Department of Labor and Industries 10 days prior to the start of work and amended permits.

PAS has prepared submittals for the project and submitted them to the general contractor on behalf of the owner. PAS will establish a regulated area or construct containment for areas in each work area to abate the materials in each area. PAS will provide exposure WISHA air monitoring during abatement work and post at site in the manner and time specified.

PAS will dispose of abatement materials as ACM at Greater Wenatchee Regional Landfill and Recycling Center. A copy of the EPA approved permit for acceptance of ACM is provided as a part of our submittal.

2.0 PRE-WORK REQUIREMENTS / SUBMITTALS / NOTIFICATIONS / FACILITIES / UTILITIES / CONSTRUCTION REQUIREMENTS / POST ABATEMENT REQUIREMENTS

The procedures to be used in order to comply with the state and local regulatory agency asbestos standards are presented here. These procedures shall be used where large areas of asbestos-containing material must be removed. The major planning steps for an abatement job include:

- Planning the removal project.

- Assembling equipment and materials.

- Preparing the work area.

- Removing the asbestos material.

Cleaning the work area.

Clearance monitoring.

Disposal of the asbestos waste.

2.1 Pre-Work Requirements: Simpson Company Requirements

PAS is currently providing Simpson asbestos and lead abatement services under contract directly with them.

1. PAS has provided Manson Construction a Certificate of Insurance.
2. Workers on this project will have the required drug screen prior to the start of work.
3. Workers on this project will have the required Safety Orientation prior to the start of work.
4. Workers on this project will have the required Site Entry Procedure Orientation prior to the start of work.

2.2 Submittals/Notifications

PAS acknowledges that work will not start without written direction from the City of Tacoma, the Owner (Simpson) and Manson Construction, Inc. We do not see a requirement in Section 02080 for approval by EPA.

Section 02080 1.06 Worker Awareness of Asbestos:

PAS will use the PAS safety minutes to verify that our Certified Asbestos Workers, having taken a 40 hour training course regarding asbestos, regulated by EPA and certified by Washington L & I are aware of the hazards of asbestos. This is in addition to the orientation PAS provides all new workers concerning the hazards of asbestos and other construction job related hazards.

The Notification to PSCAA is attached.

The Notification and amendment to L & I is attached.

The Permit for the landfill is attached here.

PAS will read and sign project Health & Safety Plan prepared by Argus Pacific prior to start of work.

Pre-abatement sampling will be performed by PRE and PRE will provide a site plan to show locations of sampling.

2.3 Facilities/ Utilities

Water connection will be made available by means of a water hose from the existing Simpson facility.

Electrical will be made available by means of a temporary power by a licensed electrical contractor provided through Manson Construction.

Sanitary needs will be met by the use of Waste Management. The firm will provide portable job site toilets for the duration of the abatement project.

The utilities have been disconnected from the site since the abandonment of the building.

2.4 Construction Requirements: Submittals/Notifications

1. Quality Control Reports will be prepared on a daily basis, signed by the PAS' QC representative and will be submitted to Manson who then will be responsible to submit them to the COT.
2. Air monitoring results will be provided on a daily basis, and will be submitted to Manson who then will be responsible to submit them to the COT.
3. Air monitoring results from the previous day will be posted on the job within 24 hours except on Friday and those will be posted Monday.

2.5 Post Abatement Requirements: Submittals/Notifications

1. Visual inspection by COT and OER will verify completion of ACM. Inspectors will not be allowed in PAS' containment without proper personal protective equipment, certification of fit test, a current physical including statement that they're capable of wearing a respirator and certification of awareness of the dangers of asbestos. The inspection will include the encapsulated post abatement surfaces.
2. A PAS clearance form complying with the form provided in the Section 02080 is attached. The form includes inspection and sampling.
3. The Waste Shipment Record (manifest) will be presented to Simpson for signature.
4. The PAS foreman will inspect the waste vehicle or container for compliance to regulatory requirements.
5. Signed waste manifests will be given to Manson Construction for proper distribution.
6. PAS will certify that all asbestos identified in the survey provided has been removed in accordance with local, state and federal regulations after abatement.

3.0 SCHEDULE

The work is anticipated to take approximately 10 shifts after completion, acceptance and written acknowledgement of our work plan.

4.0 SURVEY OF WORK

Prior to abatement in any area the owner and PAS will be in agreement on the following items:

- ☐ Limits of work.
- ☐ Visual inspection & video documentation of existing conditions if deemed prudent.
- ☐ PAS' use of water, power, and sanitation facilities as discussed above.
- ☐ Sequencing of the work.

5.0 SITE ACCESS

Worker and visitor procedures: The owner is hereby advised that asbestos has been determined to be a cancer-causing agent. PAS will provide its workers respirators,

Personal Protective Equipment (PPE) including: protective clothing, hard hats, goggles, appropriate footwear and other protection deemed necessary. The site will be restricted to authorized visitors and workers. No visitor will be allowed to enter the work area without a current appropriate fit test and physical exam.

A warning sign will be at each entrance to the work area:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING

ARE REQUIRED IN THIS AREA

6.0 PREPARATION OF ENCLOSURES

PAS will utilize the following types of enclosures in preparation of the site for abatement activities in order to remove asbestos in a safe manner, control fiber release and insure adequately wet removal.

Regulated Non-Contained Areas

Regulated non-contained areas will be used for removal of the following items:

- ☐ Thermal System Insulation under proper glove-bag procedures.
- ☐ Floor tile and mastics.
- ☐ Roofing.
- ☐ Intact Sheet flooring removal (substrate with sheeting as unit)
- ☐ Mastic dots.
- ☐ Tar impregnated sheeting on exterior.
- ☐ Sink.
- ☐ Fire Door.

Barrier tape and warning signs will delineate the regulated area. The area will be physically defined to include ACM to be abated. Critical barriers of 6 Mil poly will be placed on ventilation grilles. HVAC will be locked out. Barrier tape and signage will be placed to keep

trades working in adjacent areas from entering our work area. PAS will have a safety meeting with other trades on the site to explain the barrier process.

Proper signage will be placed at the entrance and limits of the work area.

Regulated Non-Contained Areas for Roof Abatement (section 020801.07B.7)

Regulated non-contained areas will be used for the roofing abatement as non-friable materials.

Barrier tape and warning signs will delineate the regulated area. The area will be physically defined that include ACM to be abated. Critical barriers of 6 Mil poly will be placed on ventilation grilles. HVAC will be locked out or verified to be disconnected as the building is vacant and will not be reoccupied.

Proper signage will be placed at the entrance and limits of the work area. Roofing material will be removed wet and completed with manual methods including a roofing shovel, pry bars and other manual tools.

Mini-Containment

Mini-containment will be used for small work areas for the following items as deemed necessary by the CAS:

- Other ACM materials as deemed necessary such as pipe and ceiling tile abatement.

Containment will be constructed around the immediate work area of the material to be removed. The containment will be constructed of a rigid frame with 6 Mil critical barriers and flaps. A separate decon area will be constructed. Floors will be covered with 6-mil poly sheeting.

A HEPA filtration unit will be connected to the work area and exhausted outside or to a double HEPA inside if outside exhaust is not feasible or practical.

Proper signage will be placed at the entrance to the work area. Fire exits will be established and maintained during the abatement activities.

7.0 ABATEMENT WORK METHODS

Removal Methods in Regulated, Non-Contained Work Areas

Establish a regulated, non-contained work area as outlined above in PREPARATION OF THE ENCLOSURE. Provide an area for tool and PPE cleaning and waste preparation. Area may require the non-ACM demolition of walls, partitions, and other obstruction to access the ACM. Remove ACM materials by wet manual methods. After removal the substrate, if any, should be cleaned and the area vacuumed or mopped.

Removal Methods using Glove Bag Procedures

Establish a regulated non-contained work area as described above in PREPARATION OF THE ENCLOSURE. Use a two-worker team to perform glove bag activity. Use the glove bag per manufacturer's instructions and guidelines. Insert wand from garden sprayer through water sleeve and spray pipe or fitting insulation. Smoke test bag. Adequately wet material. Carefully cut with placed tools a three-foot section of thermal system insulation. Scrub

exposed surface of the substrate with a brush. Remove tools and then collapse the bag, twist and tape to secure. Remove glove bag and place in proper disposal bag. Only experience workers should perform glove bag operations.

8.0 ABATEMENT BY ITEM

Tile, Mastics on wood sub floor, Sheeting on Wood Sub floor (Class 2 Materials)

Flooring will be removed intact by removing the sub floor as a component. Removed components will be wrapped in two layers of 6-mil poly and placed in the ACM container.

Ceiling tiles and mastic

A mini containment will be constructed around the work area. Materials previously disturbed by vandals will be watered downed and cleaned up prior to the removal of the remaining materials.

Thermal System Insulation

Use a two-worker team to perform glove bag activity. Install the glove bag per manufacture's instructions and guidelines. Insert wand from garden sprayer through water sleeve and spray pipe or fitting insulation. Smoke test bag. Adequately wet material. Carefully cut with placed tools a three-foot section of thermal system insulation. Scrub exposed surface of the substrate with a brush.

9.0 DECONTAMINATION

Removal of gross ACM is integral with the performance of abatement work and as such the procedures are specified in the appropriate work sections of this AHAP. Decontamination will proceed after the gross abatement is complete.

Dispose of the removed demolition materials as asbestos waste. Remove decontaminated HEPA units and tools from the area. Provide cleaning of the area after all materials and equipment is removed.

Perform a complete visual inspection of the entire work area to ensure that all visible ACM has been removed. Any small quantities of residual material found after the removal of poly sheeting will be removed by a HEPA filtered vacuum cleaner.

10.0 DISPOSAL

All ACM material removed will be wetted down and placed in a 6 mil bags, taped closed and then taken to a bagging area for cleaning. Material will be labeled before leaving the work area and material will be transported from the work area to the materials containers.

Transportation of the dumpster trailer van will be accomplished by D & B Trucking to Greater Wenatchee Regional Landfill and Recycling Center.

The ACM material will be manifested from the site to the landfill. Both daily and at the completion of the project the consultant will receive a copy of the completed manifest and dump fee receipts.

It is anticipated that the project will be completed within 10 days; therefore the issue of disposal limitation should not be applicable to this project (storing of waste for more than 10 days). It is anticipated that preparation work and enclosure construction will take 2 days and waste should not be generated until the third day and if the project is completed in

within the time limit of storage of containerized ACM material on the site. PAS may elect to transport the ACM to our facility where we have a 90 PSCAA Authorized Asbestos Storage permit that is valid until 7/15/04. A copy is attached. The material will be stored in a locked elevated trailer chassis, provided by NTSI of Tacoma, WA. The trailer lining and inspection will be performed by our CAS at the site prior to placement of properly labeled debris bags (double 6mil poly preprinted bags).

PAS will incorporate the following items into our work plan as stated in the Asbestos Abatement Work Plan review process Section 02080 of the specification.

1. PAS will remove bagged, drummed or mega-boxed material on a daily basis. The container will be removed from the work site to the lined trailer or our sealed van.
2. The containerized material will not be stored outside the work area.
3. The containerized material will not be stored for more than 8 hours in the work site.
4. PAS will give Simpson at least 24 hours notice of the required signature of the waste manifest.

11.0 AIR MONITORING

Pacific Rim Environmental will be onsite to perform air monitoring, including personal protection samples.

Monitoring will be done in accordance with WISHA regulation WAC 296 62-07737 Appendix "B". WISHA reference method.

Air monitoring results will be posted daily and submitted at the conclusion of the project to the owner.

The required qualifications of the laboratory are attached to our submittals.

Initially, PAS will determine if our workers may be exposed to asbestos fibers in excess to TWA and excursion limits in accordance with WAC 296-62-07709. PAS will conduct, under air monitoring requirements, personal samples representative of one full shift, including one sample per job classification in each work area. There are a number of job classifications: Flooring and mastic abatement and others listed in the introduction and several work areas for this project.

Section 02080 1.08 B.2

PAS independent laboratory, Pacific Rim Environmental, NVLAP accredited and PAT Program participant, has provided an air-monitoring plan that is attached to address the issues raised in the review comments.

The specification Section 02080 1.08 B.2.c calls for 15 excursion personal samples. The current regulation is *30 minutes* and PAS will comply with current regulation in order to be in compliance.

12.0 RESPIRATORY / PPE PROTECTION

Cartridge changes shall be made only in areas outside the area in which respiratory protection is being used. Respirators are to be cleaned at the end of every work shift and properly stored in the clean area.

NIOSH approved half-face HEPA respirator are North models and may only be worn while working in a regulated area for ACM materials as designated in table 1 of the respiratory protection program provided in this submittal. Half-face HEPA respirators may not be used in areas where exposure level is above 1 f/cc (fibers per cubic centimeter).

NIOSH approved full-face APR (air purifying respirator) HEPA respirator are North models and may only be worn while working in a regulated area for ACM materials as designated in table 1 of the respiratory protection program provided in this submittal. Full-face APR HEPA respirators may not be used in areas where exposure levels are above 5 f/cc.

NIOSH approved full-face PAPR (power air purifying respirator) HEPA respirator are Racal models and may only be worn when working in a regulated area for ACM materials as designated in table 1 of the respiratory protection program provided in this submittal. Full-face PAPR HEPA respirators may not be used in areas where exposure levels are above 10 f/cc.

NIOSH approved full face piece supplied-air respirator operated in a pressure - demand mode equipped with an auxiliary HEPA filter, (Type "C") respirators are both Survivaire and North models and will be used in full negative pressure enclosures or any approved dry removal of asbestos.

Requirements of applicable federal, state and local regulations shall be met or exceeded. Minimum procedures are to be followed regardless of the fiber concentration in the work areas. The following procedures are to be utilized to provide worker protection during the course of this project. Abatement personnel will be required to wear the appropriate personal protective equipment. The selection of the equipment will be based upon the asbestos activity and appropriate safety considerations.

In order to insure the workers personal protection for airborne fibers all material is to be removed adequately wet.

Workers performing asbestos abatement at the site entering a regulated area will wear a respirator equipped with high-efficiency particulate air (HEPA) filter cartridges. A higher level of respiratory protection may be chosen at the workers discretion. Polypropylene non-woven fabric suits with hoods and booties are required to be worn. Additionally rubber boots, latex gloves, eye protection, back supports and hard hats are required for workers entering a regulated work area.

Employees expected to wear air-purifying respiratory protection must be fit tested for the brand and model respirator they will be wearing during work. Fit tests are required to be performed in accordance with the OSHA/WAC standard every six months.

All respiratory protection will follow OSHA Safety and Health Standards 29 CFR 1910.134 and the Performance Abatement Services Respiratory Protection Program found in this submittal.

Section 02080 1.07 B17 Fit Test Requirements

Gary Hansen, PAS General Foreman and QA/QC representative for this project will certify that no worker will be allowed to perform asbestos or lead abatement without the following certificates:

- ☐ Current Fit Test for the appropriate respirator (Qualitative or Quantitative) within one year of work date.
- ☐ Medical exams within one year of work dates.
- ☐ Certified Asbestos Worker or Supervisor Card from the State of Washington (Department of Labor & Industry).

13.0 WORKER CERTIFICATION

All workers are either Certified Asbestos Supervisor or Certified Asbestos Workers. Worker cards are part of the submittal package. Only WA Labor & Industries Certified workers are to be used for asbestos abatement activities and their current cards will be onsite at all times.

Section 02080 1.07 B17 Fit Test Requirements

Gary Hansen, PAS General Foreman and QA/QC representative for this project certify that no worker will be allowed to perform asbestos or lead abatement without the following certificates:

- ☐ Current Fit Test for the appropriate respirator (Qualitative or Quantitative) within one year of work date.
- ☐ Medical exams within one year of work dates.
- ☐ Certified Asbestos Worker or Supervisor Card from the State of Washington (Department of Labor & Industry).

14.0 SAFETY/CONTINGENCY PLAN

The following procedures are to be utilized to provide worker protection during the course of this project:

- ☐ All material will be removed wet. Extreme care will be used around electrical equipment and to ensure high voltage room is shut down and tagged out.
- ☐ Full Face APRS respirators are North brand.
- ☐ Disposable suits will be worn.

All applicable fire, hospital & emergency phone numbers will be posted at or near the clean room. Fire extinguishers will be provided in the work areas. In the case of an emergency, work shall stop and workers will exit the work area.

MEDICAL EMERGENCY PROCEDURES SITE SPECIFIC

Section 02080 1.07B Fall Protection Plan

The site-specific fall protection plan is attached and is part of our submittal.

1. In case of emergency, contact the job CAS, who has a two-way radio to the outside help.
2. In case of FIRE, use fire extinguishers. IMMEDIATELY notify the Tacoma Fire Department (911) of all fires. EVACUATE all personnel if the fire is not immediately extinguished. Exit routes have been spray painted with signs and directional arrows to indicate the appropriate exit path.
3. An ELECTRICAL shock hazard exists whenever working with water around power sources. Lockout electrical system WITH PHYSICAL LOCK prior to abatement; protect all temporary power connections to keep them dry. In case of severe shock, IMMEDIATELY contact emergency medical personnel (dial 911) and Fire Department. Turn off power and remove the source of electrical shock.
4. In case of PHYSICAL INJURY due to accident, supply first aid treatment and notify emergency medical personnel. DO NOT MOVE someone who is severely injured. Evacuate workers not assisting the injured so that emergency medical personnel can use their respirators.
5. HEAT STRESS and dehydration can occur from working in containment with full personnel protection. If you have any of the signs of heat stress or dehydration, exit the work area through the decon unit and get medical help. These signs are: Feeling faint or dizzy, nausea, headache, cramps, or heat rash.
6. Water LEAKS are not considered emergencies on this project because of the unoccupied nature of the site. A shift Supervisor or his lead person will monitor the areas next to the work area. If leaks are found, abatement work will stop and the leak repaired. If the leak is close to electrical equipment, the Supervisor will notify the building maintenance personnel to shut down the equipment. Once the water is cleaned up and the source of the leak identified and corrected, work may proceed.

ASBESTOS FIBER RELEASE EMERGENCY PROGRAM

In case fiber counts from personnel monitoring and/or area samples exceed maximum allowable levels, this program is to be implemented. Notify PAS immediately when one of the following levels is exceeded.

MAXIMUM ALLOWABLE FIBER COUNTS

<u>AREA/PERSONNEL SAMPLE</u>	<u>MAX ALLOWABLE F/CC</u>
Highest Personnel Sample (TWA)	0.10
Inside Regulated Area (Non-contained)	0.10
Inside Full Containment (30 Min. Excursion.)	1.00
Outside Work Area	0.01
Negative Air Exhaust	0.01

PAS PERSONNEL

PAS Office	206.467-8733
PAS Project Designer\Paul Hanway - Mobile	(b)(6)
PAS General Superintendent\Gary Hansen - Mobile	
PAS General Foreman\Earnest Crane - Mobile	

Be able to give specific information about the location and type of work being performed, the sample, a possible reason for the high level, and a suggestion as to how to correct the problem. Note this information on the Daily Log.

The Project General Foreman is responsible to carry out the following actions:

1. Stop the work in the sample area and have workers exit and follow normal decontamination procedures.
2. Record the specific information detailed above, including the date and time the fiber count was known, and who supplied the air monitoring data.
3. Inspect the containment and repair any holes or tears.
4. Inspect negative air equipment and replace filters.
5. Notify the Superintendent or Project Manager to inform them of the incident.
6. Take necessary corrective measures.

EMERGENCY PROCEDURES

CORRECTIVE MEASURES

1. Have worker(s) suit up, don appropriate respirator and enter containment.
2. Clean the work area where the high fiber count was taken with appropriate method (HEPA vac, wet wipe, etc.).
3. Review removal procedures with worker(s).
4. After the Air Monitoring Technician has the air pumps properly set up, supervise the worker to make sure the procedures are being followed.

5. Stop work when sample(s) has been taken; wait for results. If the sample is within tolerance, continue removal work.
6. If this sample exceeds the maximum allowable limit, stop all work and review procedures with Project Manager and/or Superintendent and the Owner's Representative, if available. Mutually agree upon a course of action to correct the problem, and follow steps 1 thru 5.

15.0 PROJECT DOCUMENTATION AND CLOSE OUT DOCUMENTATION

Section 02080 1.10 C

See attached revised daily report incorporating information outlined in the specification section 02080 1.10 C. PAS has transferred the information from the specification and applied our letterhead.

PAS QCQ Representative shall maintain daily Quality Control (QC) Reports for each workday. QC Reports shall be factual records containing numerical data of the work and quality control activities. PAS will submit QC Reports on approved forms to the City of Tacoma by the next workday following the day of the report. The CQC Representative shall verify and sign all reports. Verification will contain the statement that all supplies and materials incorporated in the work comply with the terms of the contract except as noted.

At the conclusion of the job PAS will provide the owner with a documentation package containing the following items:

Close Out: Submittals/Notifications

1. Copies of regulatory notices and amendments.
2. PAS and visitor sign in sheets.
3. Safety meeting minutes.
4. Completed QC daily reports.
5. Manometer strip for Negative Pressure Enclosure.
6. Air Monitoring results from PRE
7. Completed attached Clearance form.
8. Waste disposal manifest with disposal Facility signature (up to 30 days after disposal).

Section 02080 1.09 Close Out Documents

This paragraph describes the project closeout documentation required by the City of Tacoma upon completion of all phases of the contract work. The Contractor, PAS, shall submit to the City of Tacoma two copies of the following:

- A. Notifications and revisions to notifications for PSCAA and L & I;
- B. PAS Employee and visitor sign-in sheets;
- C. PAS Safety and construction meeting minutes;

- D. PAS completed daily QC report forms;
- E. Manometer strip chart readings for negative pressure enclosure;
- F. Air monitoring results;
- G. Completed clearance forms; and
- H. Waste disposal manifests with disposal facility signatures. Please note that the landfill may take up to 30 days to return their signed portion of the manifest.

16.0 SUBCONTRACTORS

None. PAS considers the air monitoring firm and the transporter for the waste to be service companies and not "subcontractors" as both firms are not licensed contractors but providers of services. The "certifications" of the air monitoring were provided in our original submittal for PRE. When the appropriate driver or drivers are determined for NTSI we will submit their current CDL. We are unaware of any other "certification" for a truck driver who will probably be onsite for less than an hour for the duration of the project.

17.0 RESPONSIBILITIES

The responsibility for completing the project in a timely manner will be delegated in the following manner: Branch Manager, Project Manager (PM), General Superintendent (GS), General Foreman (GF), Certified Asbestos Supervisor (CAS) and Certified Asbestos Worker (CAW).

The Branch Manager will be responsible for the overall coordination and supervision of the PM, GS, GF, CAS, CAW and office support.

The Project Manager, Paul Hanway, will be responsible for the submittals, plans, scheduling, change orders, and invoicing.

The General Foreman will be responsible for the supervision of the day-to-day procedures of the field operation of the CAW's and CAS's. Additionally, the GF is responsible for safety of the PAS workers on this project.

Attached you will find the following resumes:

- ☐ Gary Hansen, General Superintendent, Quality Control Representative
- ☐ Don Kushmaul, Certified Asbestos Supervisor, Assistant QC
- ☐ Earnest Crane (alternate Supervisor) CAS, Assistant QC

19.0 INTERFACE WITH OTHER TRADES

The interface of our activities with other construction trades will include all the selected contractors for demolition after abatement and the demolition contractor.

20.0 ASBESTOS ACTIVITY SUMMARY

The following is a list of the sequenced asbestos abatement activities:

Site Visits

Submittals to Manson Construction Company

Review of the Submittals

Asbestos Abatement

Air Clearance

Inspection Check-off

Disposal Manifest

Disposal

Preparation of Final Report

21.0 HAZARDS

Asbestos is a generic term that applies to a number of mineral silicates that are found naturally and are used as building components that can separate into individual airborne fibers. The Type of asbestos on this site includes: amosite and chrysotile. Asbestos is a confirmed human carcinogen. Exposure occurs through inhalation of airborne asbestos fibers. Inhalation of asbestos fibers may cause lung cancer and asbestosis, a hardening of the lung tissue, after a lengthy latency period.

The OSHA PEL for asbestos is a Time Weighted Average (TWA) of 0.1 fibers per cubic centimeter of air as an eight- hour time weighted average.

Physical hazards associated with abatement activities includes: vehicular/construction equipment; eye and skin contact; tripping, slipping and falling; heat stress; electrical shock; physical abrasions and cuts. These and other hazards are addressed in our submittal package.

22.0 VIOLATIONS (Section 02080 1.07 B.7)

In compliance with section 02080 1.07 B.7 Attached you will find the two violations PAS has in the past 5 years after having completed over 2,000 abatement projects in that time period.

23. QUALITY ASSURANCE/QUALITY CONTROL PROGRAM (Section 02080 1.07 B.1)

PERFORMANCE ABATEMENT SERVICES, INC. is committed to quality in all aspects of the performance of the job. To assure quality in our work, **PAS** employs independent Industrial Hygienist/Compliance Engineers.

Project specifications are reviewed by the Industrial Hygienist/Compliance Engineer to identify jobsite hazards, determine applicable engineering controls, level or respirator protection, amount and type of air monitoring, and other specifications affecting safety and hygiene on the job.

All federal, state or local compliance inspections are continuously monitored to assure complete compliance with constantly changing regulations. **PAS** regulations are designed to meet or exceed federal, state and local regulations and are updated when necessary.

OSHA and EPA state or local compliance inspections are reported to the corporate offices. Any violations will be investigated to discover the cause of and correct the violation.

PAS uses a sophisticated computerized job control system. These job controls are updated at maximum intervals of two weeks and allow our jobsite, as well as the office management teams, to know the project status at any given time. Trends can, therefore, be identified early and if trouble areas are identified, corrective action can be initiated before any major problems develop.

Documentation for each job includes federal, state and local notifications, records of worker training and certifications, employee physical examinations and respirator release forms, respirator fit test forms, reports of jobsite inspections by company industrial Hygienist, photographs of all phases of work, employee exposure records, certified Industrial Hygienist's report and air monitoring results, certifications of waste hauler and landfill, when necessary, owner acceptance form, and post job review form.

All subcontractors and vendors used by **PAS** are required and periodically monitored to meet strict qualifications concerning their ability to deliver quality products and services. All onsite air monitoring and consulting services will be independent of **PAS** and the customer. Air monitoring personnel will have all necessary training and certifications and will be supervised by a certified Industrial Hygienist. Sample analysis is done by an AIH-accredited laboratory that is independent of both **PAS** and the Customer. Waste haulers and landfills will have all necessary certifications and licenses.

GENERAL:

- A. Federal, State and Local Regulations - continual update
 - Regulations continuously monitored
 - All employees kept up-to-date on new regulations
 - PAS regulations updated when necessary
- A. Regulatory Inspections
 - Reported to Main Office
 - Citations investigated
- A. Specification review - identify hazards, determine applicable engineering controls, respirator protection, amount and type of air monitoring, and other specifications affecting safety and hygiene.

TRAINING:

- A. Industrial Hygienist

- Federal - OSHA and EPA AHERA
- State - certified in all states worked
- PAS training
- Maintain state-of-the-art knowledge by attending conferences and seminars
- Member of professional organizations such as AIHA and ASSE

A. Supervisor

- Federal - OSHA and EPA AHERA
- State - certified in all states worked

A. Employees

- Federal - OSHA and EPA AHERA
- State - certified in all states worked
- PAS training

DOCUMENTATION:

- Training and certification
- Medical records
- Notifications
- Asbestos abatement checklist
- Jobsite inspections
- Photographs
- Certified Industrial Hygienist report
- Employee exposure record
- Certification of waste hauler and landfill
- PAS/Owner acceptance form
- Post-job review form

SUBCONTRACTOR AND VENDOR QUALIFICATIONS:

- Subcontractors
- Physician and assistants
- Certified Industrial Hygienist
 - Independent of PAS or client
 - Activity according to federal, state and location regulations
 - Personnel supervised by CIH
 - Personnel certified when required by State
 - Insurance
- Laboratory
 - Independent of PAS or client

— Accredited by AIHA

- Equipment suppliers
- Subcontractors in jobsite
- Waste hauler
- Landfill operators

DOCUMENTATION:

- Training and certification
- Medical records

BRANCH INDUSTRIAL HYGIENIST INSPECTION:

- Abatement methods
- Jobsite safety
- Personnel protective equipment
- Negative air system
- Equipment usage and maintenance
- Glove-bag usage
- Labels, signs and jobsite traffic control
- Air monitoring

EQUIPMENT MAINTENANCE AND STORAGE:

- On the job
- Warehouse

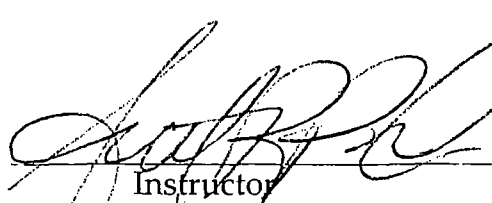
Certificate of Completion

This is to certify that
Paul S Hanway
has satisfactorily completed
one day of refresher training as a

Project Designer

to comply with the training requirements of
TSCA Title III / 40 CFR 763 (AHCRA)

Certificate Number (b)(6)


Instructor
Provider Cert. Number: MO9907012

ARGUS PACIFIC
SAFETY • TRAINING • INDUSTRIAL HYGIENE

Apr 17, 2003
Date(s) of Training
Exam Score: N/A
Expiration Date: Apr 16, 2004

Argus Pacific, Inc. • 1900 W. Nickerson, Suite 315 • Seattle, Washington • 98119 • (206) 285.3373 • fax (206) 285.3927



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 Resumes



Paul S. Hanway **Manager, Special Projects**

Title: AHERA Accredited Project Designer
 Asbestos Building Inspector

Training: EPA Certified

Experience: Paul has worked for Performance Abatement Services, Inc. (PAS) since (b) and in the industry since (b) and has managed the following major projects.

- **Schmitz Hall UW in Seattle, WA**
Project consisted of a 20,000 square foot ceiling scrape of fireproofing in occupied building with high visibility. Project completed without incident and on time. Crew worked nights with 10 to 12 workers. Project lasted 3 months.
- **REI Flagship Store in Seattle, WA**
Project consisted of entire city block demolition project with abatement. Materials included roofing, CAB, a large boiler room and extensive piping and flooring. This project consisted of lead abatement of an entire interior of a cathedral of plaster walls and ceiling.
- **Boeing Building 9-120 in Seattle, WA**
Project consisted of pipe abatement, HVAC duct insulation and flooring in occupied plant. Construction of containment suspended above Boeing workers without incident. Work performed on T&M basis under budget and on time.
- **Steven's Birth Center in Edmonds, WA**
Project consisted of abatement and demolition of entire floor of hospital containing fireproofing. Floor was 16,000 square feet and the project was completed on time and under budget.
- **Mariner's Ball Park, Seattle, WA**
Project consisted of 100,000 square feet of abatement and was completed in 2 months on schedule.
- **UNICO Puget Sound Plaza, Seattle, WA**
This 2001 abatement project consisted a major upgrade to all floors in a twenty story high rise in an occupied building and the complete soft demo of three 11,000 square foot floors for tenant improvement that was completed in a very short time line to accommodate the new tenants.
- **Historic Seattle Steam Demolition, Seattle, WA**
After the Earthquake of February 2001, the historic 165 high stack was damaged and needed replacement. PAS abated the asbestos, managed the other hazardous materials and removed the stack in Pioneer Square without injury or damage. PCI our sister company provided the Thermal Insulation on the replacement stack.

Gary W. Hansen

Title: Certified Asbestos Supervisor – Foreman

Training: State of Washington Certified

Experience: Gary has worked for Performance Abatement Services, Inc. (PAS) since (b) and has supervised the following major projects.

- **Weyerhaeuser #2 Boiler and Bleach Plant in Everett, WA**
Project consisted of complete abatement of large industrial bleach plant (nine stories high). Project lasted 3 months with a crew of 8-10 workers.
- **Schmitz Hall UW in Seattle, WA**
Project consisted of a 20,000 square foot ceiling scrape of fireproofing in occupied building with high visibility. Project completed without incident and on time. Crew worked nights with 10 to 12 workers. Project lasted 3 months.
- **REI Flagship Store in Seattle, WA**
Project consisted of entire city block demolition project with abatement. Materials included roofing, CAB, a large boiler room and extensive piping and flooring. This project consisted of lead abatement of an entire interior of a cathedral of plaster walls and ceiling.
- **Colby/Hewitt Project in Everett, WA**
Project consisted of abatement of 11 building prior to demolition of asbestos flooring, piping, PCB's, boiler room, spray applied texture, Project completed in two months with twenty workers.
- **Boeing Building 9-120 in Seattle, WA**
Project consisted of pipe abatement, HVAC duct insulation and flooring in occupied plant. Construction of containment suspended above Boeing workers without incident. Work performed on T&M basis under budget and on time.
- **Wapato Gym in Wapato, WA**
Project was ceiling scrape of 26,000 square feet elevated ceiling material. Project utilized "Guzzler" to remove material efficiently. Crew was 12 workers for six weeks.
- **Sears Department Store in Seattle, WA**
Project consisted of ceiling demolition in occupied store of 10,000 square feet in full containment.
- **Steven's Birth Center in Edmonds, WA**
Project consisted of abatement and demolition of entire floor of hospital containing fireproofing. Floor was 16,000 square feet and the project was completed on time and under budget.

Earnest Crane

Title: General Foreman

Training: State of Washington Certified, EPA Certified, and First Aid & CPR Trained

Experience: Earnest has worked for Performance Abatement Services, Inc. (PAS) since (b)(6) and has supervised the following major projects.

- **REI Flagship Store in Seattle, WA**
Project consisted of entire city block demolition project with abatement. Materials included roofing, CAB, a large boiler room and extensive piping and flooring. This project also included lead abatement of the entire interior of a cathedral with plaster walls and ceiling.
- **Colby/Hewitt Project in Everett, WA**
Project consisted of abatement of 11 building prior to demolition of asbestos flooring, piping, PCB's, boiler room, spray applied texture, Project completed in two months with twenty workers.
- **Boeing Building 9-120 in Seattle, WA**
Project consisted of pipe abatement, HVAC duct insulation and flooring in occupied plant. Construction of containment suspended above Boeing workers without incident. Work performed on T&M basis under budget and on time.
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- **Steven's Birth Center in Edmonds, WA**
Project consisted of abatement and demolition of entire floor of hospital containing fireproofing. Floor was 16,000 square feet and the project was completed on time and under budget.
- **Mariner's Ballpark in Seattle, WA**
Project consisted of 100,000 square feet of abatement. The project was completed on schedule and under budget in 2 months.

- **Meadowdale High School in Edmonds, WA**
Project consisted of 65,000 square feet of flooring, piping, boiler insulation, windows, CAB, gaskets, and sealant abatement. Soft demolition of the entire pod of buildings was included as ACM.
- **NW Energy - 100N HGP, Hanford Reservation**
Major asbestos abatement project of the piping systems associated with the turbines. Project consisted of multi-floor, contained abatement of over 25,000 lineal feet of large bore piping.
- **Smith Tower Renovation in Seattle, WA**
Project consisted of the floor-by-floor removal of pipe chases and flooring material in this landmark structure. The building was occupied and work was performed without interruption to the tenants.
- **Washington State Ferry Yakima in Seattle, WA**
Large-scale abatement of passenger areas and engine rooms for ship renovation.
- **Deluxe Check in Seattle, WA**
Large-scale lead abatement of former printing facility.
- **Newman Center in Seattle, WA**
Full abatement of Catholic Archdiocese building and three residences for demolition.
- **Tiffany Park Elementary in Renton, WA**
Full abatement of school for demolition. Project consisted of flooring, roofing, CAB, and piping. Project was completed on short duration schedule.
- **Sea-Tac International Airport in Sea-Tac, WA**
Various projects consisting of fireproof abatement, ACM paint and piping systems in an operating airport with stringent multiple consultant oversight.

PROJECT HISTORY:**Donald A. Kushmaul**

List largest or most notable project assignments last 5 years. Include wide range of projects, assignments, and work types

Customer	Project Name	Type of work
ALCOA	Maintenance, Projects	Asbestos and Lead
Your Assignment	Wenatchee, WA.	
Site Supervisor	\$2,000,000.00	Date Compl.
Project Safety Coordinator		MAR. 01
Customer	Project Name	Type of work
Childrens Hospital	Childrens Hospital, Maintenance	ASBESTOS ABATEMENT
Your Assignment	Seattle, WA.	
Site Supervisor	\$1,000,000.00	Date Compl.
Project Safety Coordinator		FEB. 01
Customer	Project Name	Type of work
US Oil and Refining	Asbestos Maintenance	ASBESTOS ABATEMENT
Your Assignment	Tacoma, WA.	
Site Supervisor	\$200,000.00	Date Compl.
Project Safety Coordinator		JAN. 01
Customer	Project Name	Type of work
Wick Construction	Lake View Elementary School	ASBESTOS ABATEMENT
Your Assignment		
	\$190,000.00	Date Compl.
		Nov. 94
Customer	Project Name	Type of work
Mercer Island School Dist.	Mercer Island Elementary	ASBESTOS ABATEMENT
Your Assignment		
	\$150,000.00	Date Compl.
		SEPT. 95
Customer	Project Name	Type of work
Mercer Island School Dist.	Mercer Island High School	ASBESTOS ABATEMENT
Your Assignment		
	\$450,000.00	Date Compl.
		AUG. 98
Customer	Project Name	Type of work
PGE	Trojan Cooling Tower	ASBESTOS ABATEMENT
Your Assignment		
	\$1,500,000.00	Date Compl.
		FEB. 00
Customer	Project Name	Type of work
Your Assignment		
		Date Compl.
Site Safety Coordinator		

Resume

Name Donald A. Kushmaul

Assignment(s)

	Start date	Ending date	Assignment (Position/Location/Responsibilities)
PAS	(b)(6)	PRESENT	Asbestos and Hazardous Waste Supervisor

Employment History

Start date	Ending date	Employer Name and Address	Position Held
(b)(6)		Environ. Services, Tacoma, WA.	Abatement Worker
		M. J. Associates, Tacoma, WA.	Project Manager
		AA Contractors, Seattle, WA.	Abatement Worker
		Quality Asbestos Inc., San Fran., CA.	Superintendent, CA. & WA.
		AA Contractors, Seattle, WA.	Abat. worker., Whse Mgr.
		LVI Eviron. Services, New York, NY.	Abatement Worker
		National Big-4 Asb. Rmvl. Specialty, IL.	Abatment Supervisor
		General Bldrs. Of America, Edmonds, WA	Superintendent
		Insulation Rmvl. Spec., Seattle, WA.	Abatement Worker
		Rona Company, Roy, WA.	Abatement Supervisor
		P.L. Whitton NW Co. Renton, WA.	Project Manager
		TLH Environmental, Inc., Seattle	Abatement Worker
		AC&S, Inc. Kent, WA.	Abatement Supervisor
		Performance Abatment Srvc. Seattle	Abat. And Haz Mat Super

Education

	Graduation	College/University	Degree - Major
	(b)(6)	Van Nuys High School, Van Nuys, CA.	

Certifications/Industry Training

	Date Completed
Certified Asbestos Supervisor	FEB.. 1990 to present
Certified Lead Abatement Worker	FEB. 1998 to present
Certified Hazardous Waste Worker	MAY 1997 to present
Certified Hazardous Waste Supervisor	MAR. 2001 to present
AHERA Bldg. Inspector	AUG. 1997 to present
OSHA 500 10-Hour Construction Safety and Health	OCT. 1999 to present
DOE RAD II Training	JUN. 2001 to present
1st Aid CPR Trained	NOV. 1986 to present

Trade/Industry Affiliations

Laborer Local #(b)

Section 02080 1.07 B.5 Violations

CITATIONS AND VIOLATIONS

Issuance Date: 4/12/99 **Inspection Date:** 1/21/99 – 3/8/99
Agency: WA Dept. of Labor and Industries
Location: 185 N. – HGP – Richland, WA 99352
Regulation Cited: 62-07712(2)(c)
Fine: \$ 170.00
Discussion: Pipe Insulation was not removed in a “saturated” state.

Issuance Date: 3/17/00 **Inspection Date:** 2/8/00 – 2/9/00
Agency: WA Dept. of Labor and Industries
Location: 1326 – 5th Ave. Seattle, WA. 98101
Regulation Cited: 62-07706(1)
Fine: \$ 0
Discussion: The employer failed to ensure all tenant employers in the Hi-rise building were informed of asbestos abatement activities (taking place in the basement).

Section 02080 1.07 B.10 Waste Storage

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION**



**HAZARDOUS MATERIALS
CERTIFICATE OF REGISTRATION
FOR REGISTRATION YEAR 2003-2006**

Registrant: **PERFORMANCE ABATEMENT SERVICES INC**
Attn: Dennis Shaw
16047 W 110th St
Lenexa, KS 66219-1327

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of 49 U.S.C. 5108. It is unlawful to alter or falsify this document.

Reg. No: 061803 007 016LN

Issued: 06/19/03

Expires: 06/30/06

Record keeping Requirements for the Registration Program

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

- (1) A copy of the registration statement filed with RSPA; and
- (2) This Certificate of Registration

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U. S. Department of Transportation upon request.

Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, DHM-60 Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, telephone (202) 366-4109.



AUTHORIZED ASBESTOS STORAGE

This 90-day temporary storage facility has been approved by the Puget Sound Clean Air Agency.

(Storage site requirements listed on back.)

Authority granted to:

Performance Abatement Service
422 Forest St
Seattle, WA 98134

Storage site: 422 S Forest St
Seattle, WA 98134

Approved by: PS Clean Air Agency

Maria A. Walker

Expiration date: July 15, 2004



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

**Section 02080 Greater Wenatchee Regional Landfill and
Recycling Center Permit**

Tax Parcel No. 22211420001 (39.07 acre)
22211410002 (30 acre)

CHELAN-DOUGLAS HEALTH DISTRICT

FULL PERMIT for MUNICIPAL SOLID WASTE LANDFILLING

Section I. Permittee Information
Facility Name: Greater Wenatchee Regional Landfill and Recycling Center (GWRLRC)
Facility Location: 191 South Webb Road, Douglas County, Washington

The Permittee

Owner/Operator: Waste Management Disposal Services of Washington, Inc.
Name of Contact: Michael L. Peterson, P.E.
Address: P.O. Box 1440, Wenatchee, WA 98807
Telephone: (509) 662-4591

General


Section II. Authorization. The permittee is hereby authorized to conduct activities associated with landfilling of municipal solid waste, in conformance with the attached general and specific conditions upon the basis of information supplied in the full permit application and in compliance with chapter Revised Code of Washington (RCW) 70.95.163 and 173-351 Washington Administrative Code (WAC), (including demonstrations) and all relevant federal, state, and local regulations (including state air quality, water quality and noise regulations):

This permit may be suspended or revoked according to the terms set forth in section XII herein. If the permit is suspended or revoked, the permittee may appeal the action according to the terms of the permit and RCW 70.95.210.

This permit is transferable only upon prior written approval of the Health District. The prospective transferee must demonstrate the ability to comply with laws, regulations and permit conditions. The permit shall be reviewed annually and reissued by the expiration date in conformance with Section I herein.

The issuance of this permit does not ensure that the applicant is or will be in compliance with county and/or city regulations that may be applicable to the applicant's project, including but not limited to, county road haul regulations and requirements. The applicant is directed to confer with the appropriate officials of the county and/or city where the project is located to obtain information concerning the local laws of such county and/or city and inquire as to the applicant's compliance therewith. (added 1997 renewal)

This permit is subject to yearly renewal in accordance with Section XII (3) of the General Conditions, until reissuance is required under Section XII (4).


 Randy J. Phillips, Associate Administrator
 Chelan-Douglas Health District

Date December 16, 1997

Date of Issuance: August 31, 1995

Annual Renewal Date: March 31

Date of Modification: _____

Date of Modification: _____

Date of Modification: _____

Date of Expiration: August 30, 2005

Section III. Demonstrations. * In granting this permit, the Health District acknowledges the following successful demonstrations for each applicable municipal solid waste landfill facility (MSWLF) unit made in the permit application for the time period specified:

Municipal Solid Waste Landfill Unit Name/Description	Description of Demonstration *	Appropriate Section of 173-351	Expiration Date of Demonstration
All Units Within The Current and Proposed Landfill Footprint	<u>Airport Safety</u> the landfill design and operation does not pose a bird hazard to aircraft	WAC 173-351-130(2)	Permanent
All Units Within The Current and Proposed Landfill Footprint	<u>Seismic Impact Zone</u> landfill design resists maximum horizontal acceleration	WAC 173-351-130(6)	Permanent
The Current Municipal Solid Waste Landfill Facility	<u>Public Recycling</u> opportunities are at the South Wenatchee Transfer Station	WAC 173-351-220(9)	Until the public has disposal access to the Landfill.
Module 4	<u>Land Use</u> 50 foot setback from property lines	WAC 173-351-140(3)(b)	Permanent
All Units Within The Current and Proposed Landfill Footprint	<u>Cover Material</u> use of alternative daily cover	WAC 173-351-200(2)	1 year i.e., August 30, 1996
All Units Within The Current and Proposed Landfill Footprint.	<u>Hydrogeological</u> Characterization	WAC 173-351-490	Not applicable.

* "Demonstration" means a showing by the owner or operator that human health and the environment can be protected as equally as a given requirement in the regulation.

Section IV. Description of Permitted Units, Scope of this Permit and Authorized Activities

The Permittee is authorized to conduct the following activities during the specified times at municipal solid waste landfill units as described below:

- a. i. Municipal solid waste landfill facility Unit Name/Description: North Bern.
- ii. Rule applying to this unit: ✓ 173-304 ✓ 173-351
- iii. Types of waste authorized in this unit: municipal solid waste, industrial, commercial, asbestos, petroleum contaminated soil, any non-hazardous and/or non-liquid.
- iv. Authorized design volume (including final cover) (to be determined) yd³.

- v. Earliest authorized start of activity: continual until filled to maximum design capacity as per the June 1995 Engineering Plans.
 - vi. Latest authorized completion date: to be determined.
- b. i. Municipal solid waste landfill facility Unit Name/Description: Trench 1.
- ii. Rule applying to this unit: ✓ 173-304 ✓ 173-351
 - iii. Types of waste authorized in this unit: Municipal solid waste, industrial, commercial, asbestos, petroleum contaminated soil, any non-hazardous and/or non-liquid.
 - iv. Authorized design volume (including final cover) to be determined yd³.
 - v. Earliest authorized start of activity: continual until filled to maximum design capacity as per the June 1995 Engineering Plans.
 - vi. Latest authorized completion date: to be determined.
- c. i. Municipal solid waste landfill facility Unit Name/Description: Trench 2.
- ii. Rule applying to this unit: ✓ 173-304 ✓ 173-351
 - iii. Types of waste authorized in this unit: municipal solid waste, industrial, commercial, asbestos, petroleum contaminated soil, any non-hazardous and/or non-liquid.
 - iv. Authorized design volume (including final cover) (to be determined) yd³.
 - v. Earliest authorized start of activity: continual until filled to maximum design capacity as per the June 1995 Engineering Plans.
 - vi. Latest authorized completion date: to be determined.
- d. i. Municipal solid waste landfill facility Unit Name/Description: Module 3.
- ii. Rule applying to this unit: ✓ 173-304 ✓ 173-351
 - iii. Types of waste authorized in this unit: municipal solid waste, industrial, commercial, asbestos, petroleum contaminated soil, any non-hazardous and/or non-liquid.
 - iv. Authorized design volume (including final cover) (to be determined) yd³.

v. Earliest authorized start of activity: continual until filled to maximum design capacity as per the June 1995 Engineering Plans.

vi. Latest authorized completion date: to be determined.

e. i. Municipal solid waste landfill facility Unit Name/Description: Module 4.

ii. Rule applying to this unit: ☐ 173-304 ☒ 173-351

iii. Types of waste authorized in this unit: municipal solid waste, industrial, commercial, asbestos, petroleum contaminated soil, any non-hazardous and/or non liquid.

iv. Authorized design volume (including final cover) 2,153,000 yd³.

v. Earliest authorized start of activity: upon determination by the Health District that the permittee's demonstration that the unit has been constructed in accordance with the approved plans and specifications (WAC 173-351-720(4)(b)). (see Section V. (2)).

vi. Latest authorized completion date: to be determined.

Section V. Pre-Construction, Pre-Operational, Pre-Closure Review, and Cessation of Construction or Operation Activities.

1. For each new or laterally expanded unit, the permittee shall submit final design drawings, construction specifications and construction quality assurance manual at least 60 days prior to the beginning construction date specified in Section IV. The permittee shall not begin construction until the Health District approves these documents in writing.
2. The permittee is authorized to accept solid waste at any new or laterally expanded unit, only after a licensed engineer, having supervised construction, certifies that the construction is in accordance with this permit and in accordance with the construction quality assurance plans. The operator must notify the Health District in writing of the date when solid waste will be first received at the unit. The permittee shall not accept solid waste until approved in writing by the Health District.
3. One hundred and eighty (180) days prior to beginning closure activities, specified in Section IV, the permittee shall notify the Health District and the financial assurance trustee and/or insurer of the intent to close each unit or all units according to the approved closure plan, and submit final engineering closure plans to the Health District for review, comments, and approval. Closure activities shall not begin until approval in writing from the Health District for closure has been received.

4. If construction or operation activities started under a permit issued pursuant to this chapter cease for a period of twelve consecutive months, the Health District may at its discretion revoke the permit. The Health District shall provide written notice to the owner or operator in writing explaining the reasons for revocation. The Health District shall not revoke a permit where the cessation of construction or operation is caused by factors beyond the reasonable control of the permittee or when such cessation is in accordance with the provisions of the permit.

Section VI. Plan of Operation and Operational Requirements

All operational and maintenance activities conducted at the facility shall be in conformance with the plan of operation, dated March 1995, which is hereby approved with the exceptions of the Department of Ecology and the Health District written comments that the owner/operator must respond to by December 1, 1995. The permittee is subject to operational and maintenance conditions as follows:

1. Waste Acceptance

- a. The permittee is authorized to accept for disposal, municipal solid waste and non-municipal solid waste, including industrial, inert and demolition, wood waste, other types of non-hazardous solid waste and solid wastes that have been excluded, exempted or otherwise removed from regulation under Chapter 173-303 WAC, the Dangerous Waste Regulation or otherwise excluded by state law, provided that such non-municipal wastes are co-disposed with municipal solid waste stream in a unit authorized in Section IV. of this permit, and such disposal is not elsewhere prohibited by law.
- b. The permittee must implement the procedures for excluding the receipt of dangerous waste according to the approved plan of operation.
- c. The original geographical source of municipal solid waste (MSW) disposed at the GWRLRC shall be limited to the Douglas, Chelan, Grant, Okanogan and Kittitas counties. ~~"Special Waste" in the form of PCS, ACWM, and industrial solid waste may be disposed at the GWRLRC without geographical limitation.~~ Other "special waste" will be accepted only from non-apple maggot quarantine areas. To date, the Washington State Department of Agriculture has identified the following counties as Apple Maggot Infested Counties: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Snohomish, Klickitat, King, Pierce, Lewis, Pacific, Skamania, Spokane, Thurston, Wahkiakum and Kitsap. Special waste other than PCS, ACWM and industrial solid waste would not be accepted for disposal at the GWRLRC from these areas so long as they remain apple maggot infested counties.

*PCS on side
MSW
geographical
areas*

"Special waste" shall mean petroleum contaminated soil ("PCS"); asbestos-containing waste material ("ACWM"); demolition waste; non-hazardous, remedial waste generated at sites subject to federal, state and local environmental laws; industrial

solid waste; sludges; spill wastes; non-putrescible, commercial solid waste; mining wastes; discarded chemical-containing equipment; medical waste; incinerator ash; and other non-residential, non-hazardous, non-putrescible waste. Provided, "special waste" shall not include soil from a recently (one year) removed orchard site and shall not include any agricultural or putrescible waste. (revised, PCHB case No. 96-151; revised 1997 renewal)

- d. Landfill operations shall conform to the requirements established in chapter 173-300 WAC, Certification of Operators of Solid Waste Incinerator and Landfill Facilities.
 - e. Provide an amendment or revision to the March 1995 operation plan that describes operating procedures for acceptance and disposal of petroleum contaminated soils.
 - f. Provide verification from Douglas County that all required land use permits have been obtained for the permitted area.
2. **Air Criteria.** The permittee must comply with all applicable requirements of the Washington State implementation plan approved under Federal Clean Air Act laws and shall not conduct open burning unless authorized in the approved plan of operation. Household waste shall not be open burned under any conditions.
 3. **Run-on/Run-off Control Systems.** The permittee shall maintain the run-on/run-off control systems for the active and closed municipal solid waste landfill facility units according to the approved plan of operation, and the approved engineering plans.
 4. **Record Keeping.** The permittee shall keep records required by the plan of operation at an approved location. The permittee shall notify the Health District when documents (not otherwise excluded from this requirement in the plan of operation) have been placed in or added to the operating record. The permittee shall furnish all information contained in the operating record for inspection at all reasonable times by the Health District.
 5. **Annual Reports.** The permittee shall submit an annual report for the previous calendar year to the Health District and the Department of Ecology by April 1 of each year, on forms supplied by the Department of Ecology and other information as required in this permit.
 6. **Permanent Posts.** The permittee shall clearly mark the active area boundaries as authorized in the permit, with permanent posts or using equivalent method clearly visible for inspection purposes.
 7. **Leachate Evaporation Pond.** The permittee may construct and operate a leachate evaporation pond, April 25, 1995 design approved August 16, 1995, according to the operation plans and WAC 173-304 with special conditions as follows:
 - a. A Washington State Discharge permit WAC 173-216 and any air quality permits must be obtained prior to constructing and operating the approved leachate evaporation

pond design, or a letter from the Department of Ecology stating their requirements have been met.

- b. The closure/post closure plan, financial assurance instrument, engineering plan, engineering report, and operation plan must be revised to include the leachate evaporation pond by March 1, 1996.
 - c. When no longer required for the facility, the leachate evaporation pond will be closed, properly dismantled and properly disposed off site.
8. Kittitas County - Agricultural Pests. The permittee may transport and dispose of municipal solid waste from Kittitas County in accordance with the "Agricultural Pest Protocol For Importation of Solid Waste From Kittitas County To Waste Management's Greater Wenatchee Regional landfill in Douglas County" dated September 24, 1997. (added 1997 renewal)

Section VII. Ground Water Monitoring Program and Hydrogeologic Report

1. **Groundwater Standard.** The permittee shall not allow the facility to exceed the maximum contaminant levels in ground water specified in this permit at the approved point(s) of compliance found in the 173-351-300 WAC water quality monitoring plan and the Site Specific Groundwater Monitoring Plan For the Greater Wenatchee Regional Landfill and Recycling Center, March 1995 revision. The permittee shall also not cause exceedances of standards contained in chapter 173-200 WAC (Water Quality Standards for Ground Waters of the State of Washington) or Chapter 173-290 WAC (Drinking Water Regulations).
2. **Hydrogeologic Report.** The hydrogeologic report, dated April 10, 1995, is hereby approved with the exception of comments by the Department of Ecology staff in their June 2, 1995 letter and is subject to the additional specific conditions as follows:
 - a. Submit a method to determine the groundwater flow direction and rate of flow according to 173-351-420 WAC, which must be approved by the Health District and the Department of Ecology by October 9, 1996.
 - b. Submit a statistical method for ground water monitoring as per 173-351-420 WAC, which must be approved by the Health District and the Department of Ecology by October 9, 1996.
 - c. Respond in writing to the Department of Ecology and Health District regarding the Department of Ecology June 2, 1995 letter reviewing the Hydrogeological Characterization Report by March 1, 1996.
3. **Ground Water Monitoring Program.** The Ground Water Monitoring Program, dated March 1995, is hereby approved, with the exception of comments by the Department of Ecology staff in their June 2, 1995 letter and is subject to the additional specific conditions as follows:

- a. Submit a response to the Department of Ecology June 2, 1995 letter regarding the ground water monitoring program to the Department of Ecology and Health District by March 1, 1996.

4. **Sampling and Analysis Plan.** The Sampling and Analysis Plan, dated March 1995, which meets the performance standards of 173-351-410 WAC is hereby approved.

Section VIII. Quality Assurance and Quality Control. The permittee shall perform all construction activities, including closure cap construction according to the construction quality assurance performed by an independent third party and quality control plan, dated April 21, 1993, which is hereby approved.

Section IX. Closure and Post-Closure Plans. The permittee shall perform closure and post-closure according to the closure and post-closure plans, dated April 1995, which are hereby approved, with the exception of comments by the Department of Ecology staff in their June 2, 1995 letter and subject to the following specific condition:

- a. The April 1995 Closure/Post-Closure Plan must be revised or amended in response to the Department of Ecology June 2, 1995 letter before March 1, 1996.

Section X. Financial Assurance for Closure, Post-Closure and Corrective Action. The permittee shall maintain financial instruments (for closure, post-closure and known corrective actions), dated June 4, 1991, Trust Agreement and Letter of Credit, and which are hereby approved and subject to the following specific condition:

- a. The financial assurance mechanism (trust fund/letter of credit) must be updated and adjusted to meet closure/post-closure costs of the facility as permitted and in response to the Department of Ecology June 2, 1995 letter.

Section XI. Other Specific Conditions.a. SUMMARY COMPLIANCE SCHEDULE

REQUIREMENT	COMPLIANCE DATE	LOCATION IN PERMIT
Alternative Daily Cover	12 months after permit issuance i.e., August 30, 1996	Pg. 3, Section III Demonstration Chart
Closure of N. Slope of N. Basin	TO BE DETERMINED	Pg. 4, Section IV (a)(v)
Closure of Trench 1	TO BE DETERMINED	Pg. 4, Section IV (b)(v)
Respond to Operation Plan comments by Department of Ecology and Health District	December 1, 1995	Pg. 6, Section VI
Patroleum systematized and operating procedures added to plan of operation	TO BE DETERMINED	Pg. 6, Section VI 1 (c)
Closure/Post-Closure Plan revision to include leachate evaporation pond	March 1, 1996	Pg. 7, Section VI 7 (b)
Ground water flow rate and direction determination method	October 9, 1996	Pg. 8, Section VII 2 (c)
Ground water monitoring statistical method	October 9, 1996	Pg. 8, Section VII 2 (b)
Respond to Department of Ecology 6/2/95 letter re hydrogeological characterization	March 1, 1996	Pg. 8, Section VII 2 (c)
Respond to Department of Ecology 6/2/95 letter on closure/cp-c Plan	March 1, 1996	Pg. 9, Section IX (a)
Financial insurance update	TO BE DETERMINED	Pg. 9, Section X (a)
Engineering Plans revision	March 1, 1996	Pg. 12, Section XIII (1)
Engineering Report revision	March 1, 1996	Pg. 12, Section XIII (2)

Section XII. General Conditions1. Transferability

a. This permit issued pursuant to this regulation is transferable only upon prior written approval of the Health District and a demonstration that the prospective transferee will be able to comply with applicable laws and regulations, permit conditions, and other requirements to which the prospective transferor is subject.

b. Upon transfer of ownership of all or part of the facility, a provision must be included in the property deed indicating the period of time during which the facility has been disposing of solid waste, a description of the solid waste contained within, and fact that the records for the facility have been filed with the Health District. The deed also must reference a map, which must be filed with the county clerk, showing the limits of the active areas as defined in WAC 173-351-100.

2. Appeals

- a. Whenever the Health District denies a permit, suspends a permit, or conditions a permit for a solid waste disposal site, it shall, upon request of the applicant or holder of the permit, grant a hearing on such denial, suspension, or condition.
- b. Any such appeal must be made in writing and delivered to the office of the Health District Administrator within thirty days of the date of the denial, suspension, or granting of permit with conditions upon which the appeal is based.
- c. Within thirty days after the request for hearing is made, in accordance with subsection (b) above, the Health District shall hold an appeal hearing before the District Board of Health.
- d. Notice of the District Board of Health hearing shall be given to all interested parties including the County or City having jurisdiction over the site and the Department of Ecology.
- e. Within thirty days after the hearing, the Health District Administrator shall notify the applicant or the holder of the permit in writing of the decision of the District Board of Health.
- f. Any party aggrieved by such decision may appeal to the Pollution Control Hearings Board by filing with the Hearings Board a notice of appeal within thirty days after receipt of notice of the determination of the District Board of Health.
- g. The Hearings Board shall hold a hearing in accordance with the provisions of the Administrative Procedure Act, chapter 34.05 RCW, as now or hereafter amended.

3. Renewal

- a. The owner or operator of a facility shall apply for renewal of the facility's permit annually, except for that year that a permit has been or will be reissued under WAC 173-351-720(6).
- b. Renewal procedures. The owner or operator of a facility shall apply for renewal of this permit annually, except for the year that a permit has been or will be reissued. The owner or operator is authorized to continue all activities authorized under the currently expired permit, if the Health District has not rendered a decision on renewal by the yearly renewal date of the current permit.

4. Reissuance

Any owner or operator intending to continue construction, operation or post-closure beyond the permitted duration of a valid municipal solid waste landfill facility permit must file a reissuance application at least ninety days before the existing permit expires.

5. Modification

- a. The permittee intending to modify this permit must file a modification application at least thirty days before the intended modification. A modification application must be made on forms authorized by the Health District and the Department of Ecology.
- b. In order to allow for permit modifications to be authorized at the time of permit renewal, the permittee may combine the application required for a permit modification with the application required for a renewal permit at the time of permit renewal.

6. Suspensions and Revocations

The Health District may revoke this permit if the facility is being operated in violation of chapter 70.95 RCW, chapter 173-351 WAC or local ordinances governing solid waste disposal facilities.

7. Inspections.

Employees of the Health District or its agents may enter upon, inspect, sample, and move freely about the premises of any municipal solid waste landfill facility unit after presentation of credentials.

Section XIII. Additional Standard Conditions

1. Engineering Plans

The June 1995 revised Engineering plans for the Greater Wenatchee Regional Landfill and Recycling Center must be revised as per the Department of Ecology review letters, dated June 2, 1995 and August 10, 1995, by March 1, 1996.

2. Engineering Report

The June 1995 engineering report and revision must be revised as per the Department of Ecology comments review letters, dated June 2, 1995 and August 10, 1995, by March 1, 1996.

3. **Amendments.**

This permit may be amended by certified letter from the Health District Administrator or his/her authorized designee, at any time prior to its expiration date should circumstances or conditions arise which require immediate compliance for the protection of the public health, welfare or safety.

4. **Permit Validity.**

If any part, section, sentence or paragraph of this permit should be suspended by appropriate action of the Health District, or found invalid by a tribunal or court of competent jurisdiction, the remainder of this permit shall not be affected thereby.



AUTHORIZED ASBESTOS STORAGE

This 90-day temporary storage facility has been approved by the Puget Sound Clean Air Agency.

(Storage site requirements listed on back.)

Authority granted to:

Performance Abatement Service
422 Forest St
Seattle, WA 98134

Storage site: 422 S Forest St
Seattle, WA 98134

Approved by: PS Clean Air Agency

Expiration date: July 15, 2004

Section 02080 1.07 B Fall Protection Plan

SITE FALL PROTECTION PLAN

BRANCH Seattle PAS

DATE 7-15-03

JOB NAME Thea Foss

JOB NO. 9050

JOB ADDRESS 300 Middle Water Way Tacoma WA

NAME OF COMPETENT PERSON RESPONSIBLE TO IMPLEMENT PLAN:

Earnest CRANE & Gary Hansen

NAME OF PERSON/S RESPONSIBLE FOR EQUIPMENT INSPECTIONS:

Earnest CRANE & Gary Hansen

The following Fall Protection Plan identifies fall hazards of six (6) feet or more recognized to be present at the above referenced job site. Means and methods of fall protection for the hazards identified are addressed in Performance Abatement Services' (PAS) Fall Protection Program, from chapter 12 of the PAS Accident Prevention Program. It shall be implemented by the competent person named above.

Prior to permitting PAS employees into areas where fall hazards exist, the competent person shall ensure that the employees are trained and instructed on the following topics: (The training is to be documented on the Tool Box Training Report Form and retained on-site as part of the Fall Protection Plan.)

- Nature of fall hazards on this job.
- Correct procedures for erecting, maintaining, disassembling and inspecting the fall protection system/s.
- Use and operation of guardrail and personal fall arrest systems. (Use of safety net systems, warning line systems, safety monitoring systems, and controlled access zones require written approval from the Branch Manager.)
- Correct procedures for the handling and storage of all site equipment and materials.
- Correct procedures for providing overhead protection for workers passing under/through the area.

Materials List:

Harnesses ✓

Ladders ✓

Cables ✓

Retracting Lifelines ✓

Warning Tape ✓

Scaffold Tags ✓

Lanyards ✓

Ropes ✓

Rope Grab Devices ✓

Caution Tape ✓

Warning Signs ✓

INSTRUCTIONS:

Place a check in the box next to fall hazards recognized as present at this job site. Place an additional check in the box next to the method/s of fall protection to be used. Refer to the FALL PROTECTION PROGRAM in Chapter Seven of the Accident Prevention Program (APP) for a description of the fall protection methods chosen. If a hazard is not applicable to this job site, mark the item N/A.

☒ LADDERS

☒ FALL ARREST

☐ TUBULAR FRAME SCAFFOLDS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ SUSPENDED SCAFFOLDS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ BOOM LIFTS (JLG's)

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ STAIRWAYS, SHAFTS, HATCHES, SKYLIGHTS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ FLOOR PERIMETERS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST
☐ WARNING LINE
☐ SAFETY MONITOR

☐ LEADING EDGES

☐ STANDARD GUARDRAIL
☒ FALL RESTRAINT
☐ FALL ARREST
☒ WARNING LINE

☐ MANUALLY PROPELLED SCAFFOLD TOWERS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ SCISSORS LIFTS

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST

☐ FORKLIFT/CRANE ELEVATING PLATFORM

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST
☐ PLATFORM SECURELY ATTACHED

☐ ROOF PERIMETER

☐ STANDARD GUARDRAIL
☐ FALL RESTRAINT
☐ FALL ARREST
☐ WARNING LINE
☐ SAFETY MONITOR

☐ WORKING ABOVE OTHERS

☐ SCREEN GUARDRAIL
☒ BARRICADE AREA BELOW
☒ WARNING SIGNS

☒ SAFETY MONITOR

RESCUE OF INJURED WORKER

TELEPHONE NO. FOR TRAINED RESCUE PERSONNEL:

Ernest CRANE (206-255-5114) + Gary Hansen (206) 793-1147

LIFT OR MANBASKET LOCATION:

N/A

STRETCHER LOCATION:

N/A

NAMES OF PERSONNEL TRAINED IN FIRST-AID:

E. CRANE _____

OTHER FALL HAZARDS

TASK	HAZARD	PROTECTION
EXISTING debris ^{EC} Debris	Trip Hazard	Barrier/warning

CHECKLIST PREPARED BY: E. CRANE

DATE: 2-15-03

FALL PROTECTION PLAN CHECKLIST II

Names of employees designated to work in controlled access zones:

T.B.D. _____

Injured Worker Rescue:

Emergency Telephone No: 911

Stretcher Location: N/A

List of First Aid Trained Personnel: _____

Ernest CRANE

Gary Hansen

Describe any other specific hazards not addressed above, and describe fall

protection methods for each: Limited Access on south side
of Bldg. Approach Roof From North East or
West

Prepared By: Ernest CRANE Date: 7-15-03

FALL PROTECTION PLAN CHECKLIST II

BRANCH NAME SEATTLE PAS

JOB NAME & ADDRESS Thea Foss
300 MIDDLE WATER WAY

Name of competent person Ernest CRANE

Reasons why conventional fall protection systems are infeasible:

N/A

Other measures taken to reduce or eliminate the fall hazard:

SAFETY MONITOR

Specific site location where conventional fall protection cannot be used:

N/A

Specific site locations where a safety monitoring system is implemented:

Roof





**THE FOLLOWING PROCEDURES ARE PAS' COMPANY
PROCEDURES FOR ASBESTOS ABATEMENT REFER TO THE
SITE SPECIFIC WORKPLAN FOR THIS PROJECT**

Procedures for the Removal and Disposal of Materials Containing Asbestos

General

The objectives of this section of the manual are to standardize our asbestos abatement procedures in order to comply with all Federal, State and Local safety and health regulations and to list the mandatory PAS requirements to be observed for the protection of all employees involved in asbestos abatement activities.

The Federal, State, and Municipal laws, rules and regulations can affect the performance of our asbestos abatement activities. Therefore, these regulations must continuously be checked to ensure our compliance. This should be accomplished by consulting the local Regulatory Agencies. Where contradictions or inconsistencies exist, please contact the PAS headquarters.

Prior to bidding any asbestos abatement work, all certification, licensing, and insurance requirements must be researched, and all requirements complied with.

The language of contracts that are to be signed by PAS for any asbestos abatement activities must be carefully reviewed to make certain that the indemnification clause and insurance requirements are appropriate. Also, specifications must be carefully reviewed and again, particular attention should be given to insurance and bonding requirements.

Any EPA, OSHA, local inspections, or asbestos exposure incidents must be reported immediately to the PAS Headquarters and the Corporate Risk Manager.

Background

Asbestos is a generic term applied to a wide variety of naturally occurring mineral silicates which are separable into fibers. The six major recognized species of asbestos minerals are chrysotile of the serpentine group ("white asbestos") and cummingtonite - grunerite asbestos (also amosite or "brown asbestos"), crocidolite ("blue"), anthophyllite asbestos, tremolite asbestos and actinolite asbestos of the amphibole group. Specific attributes and characteristics vary with different types, but the commercially valuable asbestos minerals, in general, for fibers which are noncombustible, possess high tensile strength, good thermal and electrical insulating properties, and moderate to good chemical resistance. They may be packed, woven, or sprayed. These characteristics of durability, flexibility, strength, and resistance to wear make asbestos well-suited for commercial and industrial applications. These include roofing and flooring products; fireproofing textiles; friction products; reinforcing material in cement, pipes, sheets, and coating material; and thermal and acoustical insulation. Asbestos has had widespread applications.

Health Concerns

The Environmental Protection Agency (EPA) has been concerned with the disease-causing potential of exposure to asbestos since the early 1970's. The concern derives from epidemiologic evidence linking airborne asbestos exposure to asbestos workers with various types of cancer and nonmalignant respiratory diseases, and from recognition that large quantities of asbestos have been found in building materials, insulation and other products. Exposure to airborne asbestos is associated with a debilitating lung disease called asbestosis; a rare cancer of the chest and abdominal lining called mesothelioma; and cancers of the lung, esophagus, stomach, colon, and other organs. The relationship between exposure level and health risk is complex. The best available data on worker exposure indicates that the risk of asbestosis, lung cancer, and mesothelioma decreases in direct proportion to a decrease in total asbestos exposure. At exposure levels below the allowable limits the risk of asbestosis is negligible. However, the incidents of lung cancer and mesothelioma exceeds baseline rates even at very low exposure levels. In addition, mesothelioma has been found in persons whose only known exposure to asbestos was from living in a household with asbestos workers or in a neighborhood of asbestos mines, mills, or processing facilities.

Asbestos related lung cancer usually appears after age 45, and its occurrence is heavily influenced by cigarette smoking. For example, in one study smokers experienced a fifty fold increased incident of lung cancer compared with similarly aged workers who neither smoked nor were exposed to asbestos. Among the non-smoking workers exposed to asbestos, only a five fold increase in incidents were found.

Disciplinary Procedures

It is absolutely imperative that strict adherence to the asbestos abatement procedures set forth shall be followed. Therefore, the following disciplinary procedures have been established:

- PAS employees who are negligently or willfully disregard any Federal, State, or Local abatement Regulation will be terminated.
- PAS employees who are negligent or willfully disregard any abatement procedure that could jeopardize his health, the health of a fellow worker or, that exposes other persons will be terminated.
- PAS employees who unwillingly or carelessly disregard an abatement procedure that could jeopardize his health, the health of a fellow worker or, that exposes other persons will be disciplined with a written warning or termination.
- PAS employees who exhibit disregard for a documentation requirement will receive a verbal reprimand or a written warning.
- Any three written warnings falling within a 24 month continuous period will result in termination of the employee.

It is understood that these disciplinary procedures are in addition to the standard disciplinary procedures displayed in the company's Accident Prevention Plan Manual.

Responsibilities

All employees under the direct supervision of PAS Management shall be responsible for the implementation of the proper work methods and procedures established in this standard for performing removal and/or encapsulation of regulated asbestos containing materials. Others shall not be permitted in areas where removal or encapsulation is in progress unless they are in compliance with all of the PAS procedures and have been given approval by PAS Management.

PAS Field Management shall coordinate with the owner's representative and all other contractors, any arrangements necessary to preclude others from being present in the immediate vicinity where asbestos abatement work is being performed, and ensure that the required OSHA 29 CFR 1926.1101 (d) (1-5) Multi-Employer Worksite requirements are complied with. PAS Field Management will also be responsible to coordinate the work activity of our subcontractor employees to ensure their compliance with all Federal, State and Local safety regulations.

PAS Supervision given the responsibility to manage asbestos abatement projects must be employees whose past performance and reliability are known and who have completed the training program as outlined.

Abatement Methods

The two approaches to asbestos abatement recommended as most effective are the total removal of the regulated asbestos containing material or its encapsulation into a cohesive state in order to eliminate its potential for environmental contamination. Each approach has advantages and disadvantages that may dictate one over the other in a particular instance. Enclosure (building a sturdy, air tight barrier around the asbestos) is also a EPA approved abatement method for specific situations. However, because it is rarely recommended, we will not address this method in our procedures.

Removal

Removal involves the physical scraping, cutting, or breaking off of regulated asbestos containing materials and disposing of the material in air-tight containers which are taken to an approved landfill. It is very labor intensive and uses a variety of special engineering controls to protect the workers and environment.

Advantages: The total removal of regulated asbestos containing materials is the only final and satisfactory solution to the problem of asbestos exposure. Competently performed, with adequate protection for workers and building occupants, removal can eliminate all potential for hazardous exposure. Continuous monitoring and record keeping requirements for the life of the building are eliminated. No future abatement is required.

ASBESTOS ABATEMENT PROCEDURES

Disadvantages: Removal is initially more complicated, time-consuming, and more expensive than other procedures. Removed material must be replaced with asbestos free material, unless the removal is performed for demolition purposes.

Recommendations: Friable material should be removed. Any material poorly bonded to the substrate will inevitably separate from that surface and fall under the additional weight of an encapsulant and, therefore, should be removed. Water damaged substances will always have resulting cohesive and adhesive weakness and will not respond to the encapsulation, thus it should be removed. Material that is more than one inch thick or that is accessible to building occupants, making it subject to frequent disturbance, contact, or vibration, is best controlled by removal.

Encapsulation

Encapsulation involves coating the regulated asbestos containing material with a liquid that binds the asbestos fibers together. When applicable, encapsulation is a practical means of preventing the release of asbestos fibers into the air. The performance of an encapsulant on a particular piece of regulated asbestos containing material is unpredictable. The problem is complicated by the fact that a given encapsulant may perform very differently when applied to two different types of material. For this reason, it is strongly recommended that all encapsulants be field testing on the actual material before a final decision to use it is made.

Advantages: Encapsulation is the quickest method of control. It is usually the least expensive control method in the short run, due to reduced labor costs and no replacement material costs.

Disadvantages: Since the regulated asbestos containing material remains in the building, monitoring and record keeping must be continued to document the condition of the material. Encapsulated regulated asbestos containing material is more difficult to remove, thus when the asbestos is eventually removed the removal costs will be higher. Encapsulation of asbestos containing fireproofing material may also reduce the fireproofing qualities of the material. Encapsulation of asbestos containing acoustical material may reduce or destroy the acoustical properties of the material.

Recommendations: Encapsulation is often a good control method for cementitious regulated asbestos containing material. Encapsulation is often advisable in situations where regulated asbestos containing material is virtually impossible to remove. Encapsulation should not be considered in the following circumstances:

- on any regulated asbestos containing material with poor cohesive strength
- on materials which are accessible to the users of the building or water damaged materials
- for regulated asbestos containing materials more than one inch thick
- in buildings and rooms which are subject to vibration.

Encapsulation can be a practical method to control the release of asbestos fibers, but certain limitations make it useful only in a relatively small number of cases.

ASBESTOS ABATEMENT PROCEDURES

Definitions

Abatement: Procedures to control fiber release from regulated asbestos containing materials. Includes removal, encapsulation, repair and renovation activities.

Aggressive Method: Removal of disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles or disintegrates intact ACM or PACM.

Air Lock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least three (3) feet such that one passes through one doorway into the air lock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air Monitoring: The process of measuring the fiber content of a known volume of air collected during a specific period of time.

Amended Water: Water to which a surfactant has been added.

ANSI: American National Standards Institute; 1430 Broadway; New York, NY 10018.

Asbestos: A group of naturally occurring minerals that separate into fibers. There are six asbestos minerals used commercially: Chrysotile, Amosite, Crocidolite, Anthophyllite, Tremolite and Actinolite.

Asbestos Waste from Control Devices: Filter material to be disposed of after being contaminated by asbestos during filtering process.

Authorized Visitors: The owner, the engineer, or a representative of any regulatory agency having jurisdiction over the project and has been cleared to enter the area by PAS Field Management.

Building/Facility Owner: The legal entity, including a lessee, which exercises control over management and recordkeeping functions relating to a building and/or facility in which activities covered by the Federal OSHA Standards 29 USC FR 1910, et al., take place.

Certified Industrial Hygienist (CIH): One certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I Asbestos Work: Activities involving the removal of TSI and surfacing ACM and PACM.

ASBESTOS ABATEMENT PROCEDURES

Class II Asbestos Work: Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III Asbestos Work: Repair and maintenance operations, where ACM including thermal system insulation and surfacing material, is likely to be disturbed.

Class IV Asbestos Work: Maintenance and custodial activities during which employees contract ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

Clean Room: An uncontaminated area or room which is part of the worker decontamination chamber with provisions for storage of workers' street clothes and clean protective equipment.

Closely Resemble: This term means that the major work place conditions which have contributed to the levels of historic asbestos exposure are no more protective than the conditions of the current work place.

Competent Person: The person responsible for ensuring establishment of the negative pressure enclosure, collection of exposure monitoring data, use of personnel protection equipment, and operation of engineering controls and work practices. In addition, one who is capable of identifying existing asbestos hazards in the work place, selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate the hazards. Also, for Class I and Class II work, one who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 USCFR 763) for Supervisor, or its equivalent; and for Class III and Class IV work, one who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth in 40 USCFR 763.92(a)(2).

Critical Barrier: One or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Curtained Doorway: A device to allow ingress and egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two or three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side and the other sheet along the opposite vertical side of the doorway.

Cutting: To penetrate with a sharp-edged instrument. Includes sawing but does not include shearing, slicing, or punching.

ASBESTOS ABATEMENT PROCEDURES

Decontamination Area: An enclosed area adjacent to and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Decontamination Chamber: A series of connected rooms, separated from the work area and from each other by air locks and used for the decontamination of workers and equipment.

Demolition: Removing load supporting structural member, including intentional burning.

Disturbance: Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. This term includes activities and disrupt the matrix or ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount which can be contained in one standard sized glovebag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Employee Exposure: Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Encapsulation Method: The application of an encapsulating material to regulated asbestos containing materials to control the release of asbestos fibers into the air.

Enclosure Method: All procedures necessary to complete enclosure of all spray, or trowel, applied regulated asbestos containing material behind air-tight, impermeable permanent barriers.

EPA: The United States Environmental Protection Agency, 401 M Street SW, Washington, DC 20460 or contact regional office.

Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.

Excursion Limit: 1.0 fiber per cubic centimeter as measured during a 30 minute period of anticipated high exposure.

Friable Asbestos Material: Any material containing more than 1% asbestos that when dry can be crushed, crumbled, or reduced to a powder by hand pressure. If the asbestos content is less than 10%, then must use point counting by PLM to verify percent.

Glove Bag: A bag-like device constructed of 6 mil polyethylene consisting of two inward projecting sleeves with gloves, an internal tool pouch, and a provision for containerizing waste material. The glove bag is designed to contain removal of small amounts of RACM.

ASBESTOS ABATEMENT PROCEDURES

Grinding: Reduced to powder or small fragments and includes mechanical chipping or drilling.

HEPA: A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter with 99.97% efficiency.

HEPA Vacuum: A vacuum system equipped with a HEPA filter.

Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.

Human Exposure: The exposure of people in an area where levels of airborne contaminants are present.

Industrial Hygienist: Professional with specialized experience in air sampling for asbestos fibers (definition applicable to this program).

Initial Exposure Assessment: An exposure assessment conducted by a competent person immediately before or at the initiation of an operation to determine expected exposures levels for that operation.

Installation: Any building, structure, or groups of structures at a single demolition or renovation site that is under control of the same owner.

Intact: The ACM or PACM has not crumbles, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

MSHA: Mine Safety and Health Administration.

Mini Enclosure: A small negative pressure enclosure designed to allow entry of one or two workers for removal of small amounts of RACM.

Modification: A changed or altered procedure, material or component of a control system, which replaces a procedure, material, or component of a control system. Omitting a procedure or component, or reducing or demising the stringency or strength of material or component of the control system is not a "modification".

Negative Initial Exposure Assessment: A demonstration by the employer, which complies with the criteria stated by the Federal OSHA Standards 29 USCFR 1910, et al., that employee exposure during an operation is expected to be consistently below the PELs.

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Negative Pressure Enclosure (NPE): An air-tight enclosure around a regulated area designed to control the escape of contamination from the regulated area.. The enclosure is placed in a slight negative differential pressure by one or more negative pressure ventilation machines. Requirements for a NPE as required by OSHA 1926.1101 (g) Methods of Compliance (5) (i)Negative Pressure Enclosure, include:

1. 4 air changes per hour,
2. A minimum of -0.02 column inches of water relative to outside pressure, which shall be maintained as evidenced by manometric measurements.
3. Negative pressure shall be maintained throughout the period of use, or until cleared by air monitoring data.

Negative Pressure Ventilation Machines: A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas.

NESHAPS: The National Emission Standard for Hazard Air Pollution (40 CFR Part 61, Subpart M).

NIOSH: The National Institute for Occupational Safety and Health, CDC-NIOSH; Building J NE; Room 3007; Atlanta, GA 30333.

Non-Friable ACM: Asbestos containing material containing more than 1% asbestos and when dry cannot be reduced to powder with hand pressure.

OSHA: The United States Occupational Safety and Health Administration; 200 Constitution Avenue; Washington, DC 20210.

Particulate Asbestos Material: Finely divided particles of asbestos or material that contains asbestos.

Permissible Exposure Limit (PEL): 0.1 fiber per cubic centimeter of air as an eight (8) hour time weighted average.

Phase Contrast Microscopy (PCM): The analytical technique for determining airborne fiber concentration by counting fibers through an optical microscope.

Polarized Light Microscope (PLM): The analytical technique for determining asbestos content of a bulk sample of a material using an optical microscope.

Presumed Asbestos Containing Material (PACM): Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to remedies stated in the Federal OSHA standards (29 USC 1910, et al.).

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Project Designer: One who has successfully completed the training requirements for an abatement project designer established by the EPA's Model Accreditation Program (49 USC FR 763.99).

Regulated Area: An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

Regulated Asbestos Containing Material: Any Material which contains 1% or more by weight of asbestos. Includes asbestos waste from renovation or demolition operations.

Removal: All operations where ACM and/or PACM is taken out or stripped from structures or substrates and includes demolition operations.

Removal Method: All herein specified procedures necessary to strip all asbestos containing materials from the designated areas and to dispose of these materials at an acceptable site.

Remove: To take out ACM or facility components that are covered with or contain RACM.

Renovation: Altering facility components in any way.

Repair: The overhauling, rebuilding, reconstructing or reconditioning of structures or substrates, including encapsulation or other "repair" of ACM and/or PACM attached to structures or substrates.

Resilient Floor Covering: Asphalt and vinyl floor tile and sheet vinyl floor covering containing more than 1%. Sheet vinyl is usually considered friable.

Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water and suitably arranged for complete showering during decontamination. The shower room comprises an air lock between contaminated and clean areas.

Surfacing Material (ACM/PACM): Material, containing more than 1% asbestos, that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Surfactant: A chemical wetting agent added to water to improve penetration.

Thermal System Insulation (TSI) (ACM/PACM): Material containing more than 1% asbestos, that is applied to pipes, fitting, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Transmission Election Microscopy (TEM): The analytical technique for determining airborne asbestos concentration through an electron microscope.

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Visible Emissions: Emissions which are visually detectable without the aid of instruments coming from ACM (does not include water vapor).

Waste Generator: Any owner or operator of a source of asbestos whose act or process produces asbestos containing waste material.

Waste Shipment Record: The shipping document required to be originated and signed by the waste generator. It is used to track and substantiate the disposition of asbestos containing waste material.

Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

Personnel Protection

Personal Protective Equipment for all personnel (mechanics, supervision, visitors) is required at the abatement work site.

Protective Equipment

Each worker must be supplied with the required personal protective equipment each day for through the complete duration of the job. The work clothes consist of disposable full body coveralls, disposable head covers, gloves (vinyl coated) and foot wear. Eye protection (goggles, safety glasses with side shields, face shields) must be worn by everyone entering the removal area. Hard hats are to be worn in the abatement area as necessary and as required by the law and job requirements. Company provided back supports must be worn as required by corporate policy. Respirators are also required to be worn by everyone entering the removal area. If hot ambient temperatures are to be experienced, contact the PAS Headquarters regarding personal protective equipment requirements (heat stress concerns).

Respirator Requirements

Permissible Practice:

- Employee exposure to airborne asbestos fibers shall be minimized as far as possible by approved engineering control measures and work practices.
- Appropriate respirators shall be provided by PAS at no cost to the employee.
- PAS shall ensure that appropriate respirators are being used at all times inside the regulated area.

Respirator Selection

1. Respirators shall be selected on the basis of all hazards to which the employee is exposed.
2. Selection of the appropriate respirator shall be determined by a competent person.
3. Table 1 of 29 CFR 1926.1101 shall be used as the minimum criteria in the selection of respirators due to the exposure to asbestos fibers.
4. PAS shall select and provide, at no cost to the employee, the appropriate respirator and shall ensure that the employee uses the respirator provided.
5. PAS shall provide a tight fitting powered, air-purifying respirator in lieu of a negative-pressure respirator specified in the table whenever:
6. In addition to the above selection criteria, PAS shall provide a full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a initial exposure assessment has not been produced.
7. Respirators shall be approved by NIOSH and MSHA.

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Respiratory Protection for Asbestos Fibers

Airborne concentrations of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10 x PEL) or otherwise as required independent of exposure pursuant to (h)(2)(iv)	Half-face air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 x PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters
Not in excess of 10 f/cc (100 x PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 x PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 x PEL) or unknown concentration	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Employee Training

All employees shall be trained by a competent person in the following:

1. proper use of the respirator
2. limitations of the respirator type used
3. proper procedures for putting on and adjusting the respirator
4. proper way to perform the positive and negative fit test
5. proper time to put on and remove the respirator in the decontamination room
6. procedures for worker self-inspection of the respirator
7. procedures for cleaning the respirator
8. special procedures when working in hazardous atmospheres such as the buddy system, life lines, and back-up respirator systems.

Use of Respirators

1. Respirators shall be assigned to individual employees for their use during the duration of the project.
2. Employees shall be required to wear their respirator at all times while inside a regulated area.
3. Employees who wear respirators shall be allowed to leave the regulated area to wash their faces or respirator face pieces whenever necessary to prevent skin irritation.

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4. Respirator filters shall be discarded or sealed to prevent escape of trapped contamination when the respirator is cleaned during the decontamination procedures.
5. Respirator filters shall be replaced whenever there is an increase in breathing resistance, or when the filter causes the flow rate of PAPR's to fall below 4 liters per minute.

Fit Testing of Respirators

1. A competent person shall perform all fit test procedures.
2. 1/2 mask, negative pressure, air-purifying respirators shall be fit tested using procedures required by OSHA Regulation 1926.1101, Appendix "C", Qualitative/Quantitative Fit Test Protocol.
3. Full face negative pressure, air-purifying respirators shall be fit tested using procedures required by OSHA Regulation 1926.1101, Appendix "C", Qualitative/Quantitative Fit Test Protocol.
4. Even though not required by OSHA regulations, all powered, air-purifying respirators shall be fit tested with the motor off (negative pressure mode) using procedures required by OSHA's Regulation 1926.1101, Appendix "C", Qualitative/Quantitative Fit Test Protocol.
5. Even though not required by OSHA regulations, all supplied air respirators with HEPA filtered egress provisions shall be fit tested with the air supply off using the emergency egress mode (negative pressure mode) procedures required by OSHA regulation 1926.1101, Appendix "C", Qualitative/Quantitative Fit Test Protocol.
6. All employees shall be fit tested before using their respirator at the beginning of each job.
7. Under no circumstances shall workers be allowed to wear a respirator if a proper face piece to face seal cannot be maintained due to:
 - a) missing teeth or absence of upper or lower dentures
 - b) excessive facial hair, sideburns, beards, mustaches
 - c) skull cap, sweat band, etc. which protrudes under the face piece
 - d) an obvious respiratory problem (labors with every breath).
8. Fit test procedures shall be repeated at a minimum of 6 month intervals, or immediately if the employee has a weight change of 20 pounds or more, significant facial scarring in the area of the facepiece seal, significant dental changes, reconstructive surgery or any other condition that may interfere with facepiece sealing.
9. Records of fit testing shall be maintained along with other recordkeeping requirements for thirty years. The following information shall be included with the records:
 - a) Date of fit test
 - b) Name, address and social security number of employee
 - c) Name of individual giving test and company name
 - d) Name, type, and size of respirator tested
 - e) Type of fit test performed
 - f) Results of fit test

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Respirator Cleaning

1. Respirators shall be cleaned by the user after each use while showering.
2. Respirators shall be disinfected regularly.

Respirator Storage

1. PAS shall provide adequate storage space for respirators in the clean room.
2. Plastic bags shall be provided for employees to store the respirator after cleaning.
3. Storage space provided shall protect respirators from excessive sunlight, heat, cold, moisture, and damaging chemicals.

Respirator Inspection

1. Inspections shall be performed by a competent person at frequent random intervals.
2. Inspections shall be performed by the employee before and after each use.
3. During inspection, the following parts shall be checked:
 - a) Face seal (pliable and free from defects)
 - b) Valves (in place, pliable and free from defects)
 - c) Filter gaskets (in place if used)
 - d) Filters (free from defects, proper type and not cross threaded)
 - e) Straps (not frayed or overstretched)
4. Supplied air respirator systems shall be inspected daily by a competent person to assure proper function.

Duties of the Competent Person

1. The competent person shall supervise, inspect and evaluate regularly the work conditions, work practices and employee exposure to hazardous conditions.
2. The competent person shall also assure that:
 - a) the protection measures used are adequate
 - b) the respirators are properly selected, used, cleaned and maintained
 - c) the respirator program is effective.
 - d) Inspections as required by OSHA 1926.20(b)(2) and OSHA 1226.1101(o)(i) A-L

Employee Assignment

1. An employee shall not be assigned to work within a regulated area until he/she has been examined by a physician (at the company's expense) who will determine if the employee is physically able to use his/her's assigned respirator.
2. The physician shall provide a statement indicating the employee's capabilities and limitations regarding the anticipated work and respiratory equipment.
3. The physician's statement shall be maintained in the project's records.

Equipment Approval

1. All equipment shall be marked, approved or accepted in accordance with standards established by applicable authorities.
2. Respirators, respirator systems and filters shall be approved by MSHA and NIOSH.

Use of 1/2 Mask, Negative Pressure, Air-Purifying Respirators

1. In general, 1/2 mask, negative pressure, air-purifying respirators are not to be used in regulated areas. Whenever practical, PAPRs are to be used as the minimum level of respiratory protection.
2. 1/2 mask, negative pressure, air-purifying respirators can be used in work areas where the fiber concentration is not expected to exceed the action level (0.1 f/cc), because of the nature of the material or the nature of the work procedure. Examples of this are removal of non-friable asbestos containing materials and construction of the enclosure system where asbestos containing materials are not disturbed.
3. 1/2 mask, negative pressure, air-purifying respirators can only be used in work areas where the fiber concentration is less than 1 fiber per cubic centimeter.
4. A qualitative fit test must be used for this type of respirator and the test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
5. 1/2 mask, negative pressure, air-purifying respirators must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the face piece must be discarded.
 - b) Check the intake and exhaust valves for distortion. Faulty valves must be replaced.
 - c) Check the head bands. If they are severely over stretched, frayed, or mutilated, replace them.
 - d) If the face piece has filter gaskets, make sure that they are positioned properly.
 - e) Inspect the filter element to ensure it is screwed properly to the face piece.
 - f) Inspect the filter element for cracks or defects.
6. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the ears; now position the respirator on the face and tighten the straps. This is done by first grasping the loose ends of the lower straps and pulling them to the rear; then repeat the process for the top straps.
7. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a "zip-lock" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals.

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8. When leaving the work area the respirator must be thoroughly cleaned. Filters must be discarded unless they can be sealed and cleaned.

Use of Full Face Piece, Negative Pressure, Air-Purifying Respirator

1. In general, full face piece, negative pressure, air-purifying respirators are not to be used in regulated areas. Whenever practical, PAPRs are to be used as the minimum level of respiratory protection.
2. Full face piece, negative pressure, air-purifying respirators can be used in work areas where the fiber concentrations are not expected to exceed 5 fibers per cubic centimeters because of the nature of the material or the nature of the work procedure. Examples of this are removal of non-friable regulated asbestos containing materials and construction of the enclosure system where regulated asbestos containing materials are not disturbed.
3. A quantitative fit test must be used for this type of respirator and the test must be conducted in accordance with OSHA 1926.1101, Appendix "C". A certified industrial hygienist shall perform the respirator fit testing procedure.
4. Full face piece, negative pressure, air-purifying respirators must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the face piece must be discarded.
 - b) Check the intake and exhaust valves for distortion. Faulty valves must be replaced.
 - c) Check the head bands. If they are severely overstretched, frayed, or mutilated, replace them.
 - d) If the face piece has filter gaskets, make sure that they are positioned properly.
 - e) Inspect the filter element to ensure it is screwed properly to the face piece.
 - f) Inspect the filter element for cracks or defects.
 - g) Inspect the face shield to ensure it is sealed and is not leaking or scratched to the extent that it restricts vision.
5. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the ears; now position the respirator on the face and tighten the straps. This is done by first grasping the loose ends of the lower straps and pulling them to the rear; then repeat the process for the top straps.
6. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a "zip-locked" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals.
7. When leaving the work area the respirator must be thoroughly cleaned. Filters must be discarded unless they can be sealed and cleaned.

Use of Powered, Air-Purifying Respirators (PAPRs)

1. Powered air-purifying respirators use a battery powered motor and fan to draw air through the filters. This eliminates the problem of inhalation resistance and allows the use of the filters with greater filtration ability. Also, the face piece is under positive pressure, reducing the chance of infiltration of particles due to improper fit or movement of the face piece during work activity.
2. Powered, air-purifying respirators (PAPRs) shall be considered the minimum level of respiratory protection for employees during the removal of friable asbestos containing materials.
3. Powered, air-purifying respirators (PAPRs) can only be used in work areas where the fiber concentration is less than 10 fibers per cubic centimeter.
4. Although not required by OSHA regulations, a qualitative fit test should be used for this type of respirator, because the respirator reverts to a negative pressure, air-purifying respirator if the battery fails. The test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
5. PAPRs must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the face piece must be discarded.
 - b) Check the intake and exhaust valves for distortion. Faulty valves must be replaced.
 - c) Check the head bands. If they are severely overstretched, frayed, or mutilated, replace them.
 - d) If the face piece has filter gaskets, make sure that they are positioned properly.
 - e) Inspect the filter element to ensure it is screwed properly to the face piece.
 - f) Inspect the filter element for cracks or defects.
 - g) Check the flow rate of the unit following manufacturer's instructions. Tight fitting face pieces such as 1/2 face and full face pieces require a minimum of 4 liters of air per minute. Loose fitting face pieces, such as hood type face pieces, require a minimum of 6 liters of air per minute.
6. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the ears; now position the respirator on the face and tighten the straps. This is done by first grasping the loose ends of the lower straps and pulling them to the rear; then repeat the process for the top straps. Next, strap on the battery pack; connect the cord from the motor assembly to the battery pack and turn it on.
7. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a "zip-locked" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals.

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8. When leaving the work area the respirator must be thoroughly cleaned. When possible the battery charging station should be placed in the equipment room. Battery packs should be disconnected from the motor assembly in the equipment room and connected to the charger. Workers will be breathing manually through the respirator filters as they enter the shower to decontaminate themselves and the rest of the respirator. Filters must be discarded unless they can be sealed and cleaned.

Use of Supplied Air Respirator Systems

1. Supplied air (sometimes called Class "C") respirator systems provide grade "D" breathing air from outside the work area to the workers. Air is transferred through the airlines by a compressor or air pump. Air coming from the compressor is purified by an air purification panel and then sent through the airline manifolds placed in the work area. Workers connect their individual air lines to the manifold. All supplied air respirator systems place the face piece under positive pressure reducing the chance of infiltration of particles due to improper fit, or movement of the face piece during work activity.
2. Supplied air respirator systems must include a provision for emergency escape in case of compressor or air pump failure. This may be accomplished by high pressure air bottles with an automatic switch over system, a lower pressure air tank reservoir, or HEPA filters mounted on the respirator.
3. Supplied air respirator systems in the pressure demand mode can only be used in work areas where the fiber concentration is less than 100.00 fibers per cubic centimeter. PAS employees will not be allowed to enter areas exceeding 100 fibers per cubic centimeters.
4. Although not required by OSHA regulations, a qualitative fit test should be used for this type of respirator if the respirator reverts to a negative pressure, air-purifying respirator for emergency egress. The test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
5. Supplied air respirators must be inspected regularly. The face piece and related air hoses should be inspected by the worker before each day's use and during cleaning. In addition, the competent person should inspect all parts of the respirator system at least on a weekly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspection of all items for a negative pressure respirator
 - b) Check the flow rate of the unit following manufacturer's instructions. Tight fitting face pieces such as 1/2 face and full face pieces require a minimum of 4 liters of air per minute. Loose fitting face pieces such as hood type face pieces require a minimum of 6 liters.
 - c) Evaluate the position of the compressor air intake. Assure the cleanest possible makeup air.
 - d) Check the operation of the air purification panel.
 - e) Check the operation of the carbon monoxide monitor and alarm.
 - f) Check the quality of the air being pumped to the workers to assure grade "D" breathing air.
 - g) Check the condition of manifold and airline hoses.

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- h) Check the air pressure at the manifold to assure proper operation of the pressure demand regulator.

Equipment and Materials

Like many other types of work, asbestos removal work requires a wide array of tools and equipment in its performance; however, due to contamination during use, these tools and equipment require special care. Since the workers themselves are most directly involved with all of the equipment, it is to their benefit to bear the first responsibility for the condition of the equipment not only because well cared for tools make the work easier, but also because equipment such as respirators,¹ HEPA filtered ventilation machines, etc. guard their health. Workers should be personally responsible for the hand tools, respirators, and other personal protective equipment issued to them, and be collectively responsible for the maintenance of all other equipment. All equipment must be kept clean to ensure its continued good operation and to prevent it from becoming contaminated with asbestos fibers. Filters in respirators, HEPA filtered ventilation machines, and HEPA vacuums should be changed at regular intervals to ensure efficient operation and continued protection of workers and environment. The need for any repairs or replacements should be reported as soon as possible to supervision for prompt corrective action. When provided with proper equipment, exercising proper use and maintenance as a basic guideline for its care, workers will be able to perform asbestos removal operations with greater efficiency and a higher level of performance.

The following is a list of personal protective equipment necessary to perform an abatement project:

Personal Protective Equipment:

1. Respirators:
 - Half/Full Face Piece Air-Purifying Mask with High-Efficiency Filters
 - Powered Air Purifying
 - Type C Supplied-Air Respirator
2. Disposable full body coveralls
3. Disposable head covers
4. Vinyl coated gloves
5. Foot wear
6. Eye protection
7. Hard hats
8. Back Supports
9. Hearing protection

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Air Movement and Filtering Equipment:

Negative-Pressure Equipment:

These systems can be used to supplement the EPA recommended method for asbestos removal. As the name suggests, these systems maintain static pressure within the enclosed work area at a level that is negative compared with that of the outside environment. The necessary pressure gradient is generally affected by means of HEPA filtered powered exhaust units. The major objectives of negative-pressure systems are to prevent asbestos fibers from escaping the containment barriers and to reduce worker exposure to airborne asbestos in the work area. Adequate exhaust rates also can provide ventilation that could increase worker comfort by creating more favorable temperatures and humidity conditions in the work area. The designed filtration efficiency of a HEPA filter is 99.97% for particles greater than 0.3µm in size. A typical HEPA exhaust unit can handle an average capacity of 1000 to 2000 ft³/minute of air at a pressure drop of 1.5 to 2.0 inches of H₂O across the filters. The HEPA filter is usually preceded by a pre-filter or series of pre-filters which remove larger particles and prolong the life of the HEPA filter. Spent filters are to be disposed of as asbestos waste.

Determining the Ventilation Requirements for a Work Area:

Experience with negative pressure systems on asbestos abatement projects indicates a recommended rate of one air change every 15 minutes. The volume in (ft³) of work area is determined by multiplying the floor area by the ceiling height. The total air flow requirements in (ft³/min.) for the work area is determined by multiplying the work area volume by the recommended air change rate i.e., one air change every 15 minutes is four changes per hour, then converting the hourly rate to a rate per minute.

$$\text{Total ft}^3/\text{min.} = \frac{\text{volume of work area(ft}^3\text{)} \times \text{air change rate per hour}}{60 \text{ minutes per hour}}$$

The number of units needed for the application is determined by dividing the total ft³/min. by the rated capacity of the exhaust unit. (Consideration of the length of the exhaust duct and the filter cleanliness should be included.)

$$\text{Number of units needed} = \text{total ft}^3/\text{min}/\text{capacity of unit.}$$

Location of Exhaust Units:

The exhaust unit(s) should be located so that makeup air enters the work area primarily through the decontamination facility and traverses the work area as much as possible. This may be accomplished by positioning the exhaust unit(s) at a maximum distance from the worker access opening or other makeup air sources.

Whenever practical, work area exhaust unit(s) can be located on the floor in or near unused doorways or windows. The end of the unit or its exhaust duct should be placed through an opening in the plastic barrier or wall covering. The plastic around the unit or duct should then be sealed with tape.

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Each unit must have temporary electrical power. If necessary, three wire extension cords can supply power to the unit. The cords must be in continuous lengths (without splice), in good condition, and should not be more than 100 feet long. They must not be fastened with staples, hung from nails, or suspended by wire. Extension cords should be suspended off the floor and out of workers' way to protect the cords from damage from traffic, sharp objects, and pinching. If possible, with a multiple exhaust units system, the machines should be connected to power supplies on separate breaker circuits.

Whenever possible, exhaust unit(s) should be vented to the outside of the building. This may involve the use of additional lengths of flexible or rigid duct connected to the air outlet and routed to the nearest outside opening. Window panes may have to be removed temporarily.

If exhaust air cannot be vented to the outside of the building or if cold temperatures necessitate measures to conserve and minimize cold air infiltration, filtered air that has been exhausted through the barrier may be recycled into an adjacent area. However, this is not recommended.

Additional makeup air may be necessary to avoid creating too high of a pressure differential, which could cause the plastic coverings and temporary barriers to "blow in". Additional makeup air also may be needed to move air most effectively through the work area. Supplemental makeup air inlets may be made by making openings in the plastic sheeting that allow air from outside the building into the work area. Auxiliary makeup air inlets should be as far as possible from the exhaust unit(s) (e.g., on an opposite wall), off the floor (preferably near the ceiling), and away from barriers that separate the work area from occupied clean areas. They should be re-sealed whenever the negative pressure system is turned off after the removal has started.

Because the pressure differential (and ultimately the effectiveness of the system) is affected by the adequacy of the makeup air, the number of auxiliary air inlets should be kept to a minimum to maintain negative pressure.

Testing the System:

The negative pressure system should be tested before any regulated asbestos containing material is wetted or removed. After the work area has been prepared, the decontamination facility set up, and the exhaust unit(s) installed, the unit(s) should be started (one at a time). Observe the barriers and the plastic sheeting. The plastic curtains of the decontamination facility should move slightly in toward the work area. The use of ventilation smoke tubes and a rubber bulb is another easy and inexpensive way to visually check system performance and direction of air flow through openings in the barrier. Another test is to use a gauge (or other instrument) to measure the static pressure differential across the barrier. The measuring device must be sensitive enough to detect a relatively low pressure drop. A Magnehelic gauge with a scale of 0 to .25 or .50 inches H₂O and .005- or .01 inch graduations is generally adequate. The pressure drop across the barrier is measured from the outside by punching a small hole in the plastic barrier and inserting one end of a piece of rubber tubing. The other end of the tubing is connected to the "low pressure" tap of the instrument. The "high pressure" tap must be open to the atmosphere. The pressure is read directly from the scale. After the test is completed, a pressure differential monitor with a continuous 24-hour readout shall be

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installed to ensure and provide written documentation that internal negative pressure was maintained inside the enclosure.

Use of the System during Removal Operations:

The exhaust unit(s) should be started just before beginning removal (i.e., before any regulated asbestos containing material is disturbed). After removal has begun, the unit(s) should run continuously to maintain a constant negative pressure until decontamination of the work area is complete.

The unit(s) should not be turned off at the end of the work shift or when removal operations temporarily stop.

Employees should start removing the asbestos material at a location farthest from the exhaust unit(s) and work toward them. If an electric power failure occurs, removal must stop immediately and should not resume until power is restored and exhaust unit(s) are operating again.

Because airborne asbestos fibers are microscopic in size and tend to remain in suspension for a long time, the exhaust unit(s) must keep operating throughout the entire removal and decontamination processes. To ensure continuous operation, a spare unit should be available.

After asbestos removal equipment has been moved from the work area, the plastic sheeting has been cleaned, and all surfaces in the work area have been wet cleaned, the exhaust unit(s) can be allowed to run for at least another 4 hours to remove airborne fibers that may have been generated during wet removal and cleanup and to purge the work area with clean makeup air. The unit(s) may be allowed to run for a longer time after decontamination, particularly if dry or only partially wetted asbestos material was encountered during removal.

Filter Replacement:

All filters must be accessible from the work area or "contaminated" side of the barrier. Thus, personnel responsible for changing filters while the negative pressure system is in use should wear approved respirators and all other required personal protective equipment. The operating life of a HEPA filter depends on the level of particulate contamination in the environment in which it is used. During use, filters will become loaded with dust, which increases resistance to air flow and diminishes the air-handling capacity of the unit(s). The difference in pressure drop across the filters between "clean and loaded" (P) conditions is a convenient means of estimating the extent of air flow resistance and determining when the filters should be replaced.

When (P) across the filters (as determined by the Magnehelic gauge or manometer on the unit) exceeds 1.0 inches H₂O, the pre-filter should be replaced first. The pre-filter, which fan suction will generally hold in place on the intake grill, should be removed with the unit(s) running by carefully rolling or folding in its sides. Any dust dislodged from the pre-filter during removal will be collected on the intermediate filter. The used pre-filter should be placed inside a plastic bag, sealed and labeled, and disposed of as asbestos waste. A new pre-filter is then placed on the intake grill. Filters for pre-filtration applications may be purchased as individual pre-cut panels or in a roll of specified width that must be cut to size.

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If the (P) still exceeds 1.0 inches H₂O after the pre-filter has been replaced, the intermediate filter is replaced. With the unit(s) operating, the pre-filter should be removed, the intake grill or filter access opened and the intermediate filter removed. Any dust dislodged from the intermediate filter during removal will be collected on the HEPA filter. The used intermediate filter should be placed in a sealable plastic bag (appropriately labeled) and disposed of as asbestos waste. A new intermediate filter (structurally identical to the original filter) should be installed. The intake grill and intermediate filter should be put back in place, and the pre-filter positioned on the intake grill. Whenever the HEPA filter is replaced, the machine should be turned off, the exhaust sealed and the pre-filter and the intermediate filter should also be replaced.

When several exhaust units are used to ventilate a work area, any air movement through an inactive unit during the HEPA filter replacement will be contained in the work area. Thus, the risk of asbestos fiber release to the outside environment is controlled.

Any filters used in the system may be replaced more frequently than the pressure drop across the filters indicates is necessary. Pre-filters, for example, may be replaced two to four times a day or when accumulations of particulate matter become visible. Intermediate filters must be replaced once every day or so, and the HEPA filter may be replaced at the beginning of each new project. (Used HEPA filters must be disposed of as asbestos containing waste.)

Conditions in the work area dictate the frequency of filter changes. In a work area where fiber release is effectively controlled by thorough wetting and good work practices, fewer filter changes may be required than in work areas where the removal process is not well controlled. It should also be noted that the collection efficiency of a filter generally improves as particulates accumulate on it. Thus, filters can be used effectively until resistance (as a result of excessive particulate loading) diminishes the exhaust capacity of the unit.

Dismantling the System:

When the final inspection and the results of the final air test indicate that the area has been decontaminated, all filters of the exhaust unit(s) should be removed and disposed of properly and the unit(s) shut off and all openings sealed with plastic and tape. The remaining barriers between contaminated and clean areas and all seals on openings into the work area and fixtures may be removed and disposed of as contaminated waste. A final check should be made to ensure that no dust or debris remain on surfaces as a result of dismantling operations.

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HEPA Vacuum Equipment:

A vacuum cleaner with a high-efficiency particulate air (HEPA) filter will be provided at each removal job for periodic vacuum cleaning of accumulated insulation dust during the course of the job. "Do not attempt to operate this type of vacuum cleaner until you have installed its various components according to the manufacturers' instructions and have thoroughly read the operating instructions."

1. Before turning on the motors, install the micro-filters on the bottom of each motor by sliding the filter over the bottom and covering as much of the bottom as the depth of the filter will permit. Be certain the filter's collar is held snugly in place.
2. Next mount the absolute or exhaust filter according to the bulletin which is packed with the filter.
3. To install the optional manometer, remove one or more of the motors from the container lid as necessary to gain access to the container interior. Then follow the manometer mounting instructions packed with the gauge.
4. To install the paper bag system, unsnap the four container clips located on the body of the cleaner, front and back.
 - a) Lift off the top, and place it carefully on the floor.
 - b) Place the molded foam insert in the bottom of the container.
 - c) Replace the standard inlet deflector with the new orifice (pointing downward), as the diagram instructions on the bag indicate.
 - d) Attach the bag protection disc on the bottom of the main filter and install the paper bag according to the illustrations printed on the bag itself.
5. For the machine that is equipped with a manometer, the manometer should be regularly checked while the machine is being used. It should be checked to see if the indicator needle on the dial remains in the green zone. If it appears in the red zone, turn off the motor(s) and shake the filter by shaking the handle in the center of the vacuum cleaner lid. When the cleaner is restarted, the indicator needle should be in the green zone. If it does not return to the green zone, turn the motor(s) off again, and empty the container. If this procedure fails to generate strong suction at this point, the main filter must be replaced. For machines without manometers, regularly turn off the motor(s) and follow the same filter shaking instructions as previously stated.
6. When emptying the vacuum, it is important that extreme care be taken. Be sure to wear the proper personal protective clothing and the proper respirator. To empty the container, first turn off the motor(s). Allow the fine dust inside to settle for a minimum of 30 seconds.
 - a) Then unsnap the container side clips and remove the container top.
 - b) The top should be placed on a plastic sheet so the dust that falls from the top can be disposed of safely.
 - c) Next, carefully slip the paper bag away from the inlet. Once free of the inlet, close the bag using the cap attached to it.
 - d) Dispose of the bag in a large plastic bag labeled for asbestos debris.
 - e) With a damp rag, wipe the inside of the container to collect any ultra-fine dust which may have settled there.
 - f) Install a new paper bag and discard the damp rag in the same manner as the dust filled paper bag.

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Electric Airless Spray Equipment:

You should use electric airless spray equipment for saturating, mist fiber control, and application of encapsulant. High pressure (2500 psi) and low pressure (500 psi) or variable pressure equipment should be available on-site and utilized as required. The correct nozzle pressure for application varies from 500 to 2500 pounds per square inch depending on the encapsulant's viscosity and solids content. In general, the lower the substance's viscosity and percentage of solids, the lower the pressure is at which it can be sprayed.

Because higher pressures cause more asbestos fibers to scatter from the surface, the equipment should be set at the lowest operable pressure. Nozzle tip sizes should likewise be selected on the basis of the viscosity and percentage of solids in the encapsulant. An appropriately sized tip will spray the encapsulant in a fan approximately eight (8) inches wide from a distance of twelve (12) inches from the surface. It will also distribute the encapsulant evenly within the fan. An improper tip will concentrate the encapsulant at the fan's edges.

Polyethylene Sheeting:

- Six (6) mil of polyethylene sheeting protection is required as a minimum for walls, doors, and windows.
- Six (6) mil of polyethylene sheeting protection is required as a minimum for all other uses.

Spray Poly:

When the situation will allow, we should consider using Spray Poly on the floor of the abatement area, 12" up the wall, and then cover the spray poly with six (6) mil polyethylene sheeting.

Leak-Tight Polyethylene Bags or Wrapping for Disposal:

Six (6) mil leak-tight polyethylene bags (with a minimum of three (3) mandatory labels) are required for the disposal of asbestos debris. Also, drums or barrels provide additional protection for containment of sharp items which could penetrate polyethylene bags and may be required in some jurisdictions or by contract language.

Irregular shaped objects, such as piping removed with regulated asbestos containing insulation intact, shall be double layer wrapped in six (6) mil polyethylene and sealed prior to removal. The three (3) mandatory labels shall be attached to the outside of the bundle before disposal. The three mandatory labels are as follows:

- OSHA Danger Label:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- D.O.T. Label:

RQ HAZARDOUS SUBSTANCE
SOLIDS, N.O.S. (ASBESTOS)

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ORM-E NA-9188

- EPA (NESHAPS) Information Label:
The information required on this label is the name of the waste generator and the location of the source of the asbestos containing waste.

HAND TOOLS:

Knives, shovels, scrapers, snips, brushes, self-contained water spray devices and other hand tools are required to manually remove the asbestos. The use of power tools is absolutely forbidden because when used they would release dense concentrations of asbestos dust fibers into the atmosphere. However, the use of a specially designed collection device attached to the power tool and connected to a HEPA vacuum may be considered and used with approval. A sufficient quantity of hand tools should be maintained at the job site to ensure proper progression of the work.

TAPE:

Tape that is resistant to amended water or encapsulants is required. Fabric duct tape is recommended. Paper masking tape is not be permitted.

ASBESTOS DUST CONTROL SIGNS:

Danger Signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be present. The signs shall be posted at a distance from the location, so that an individual may read the signs and avoid or take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas where asbestos is being removed.

The signs shall conform to the requirements of a 20" x 14" vertical format. The signs shall display the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

Spacing between lines shall be at least equal to the height of lettering on the line above it.

Glove Bags

A glove bag must wrap completely around whatever object it is applied to. It must create a completely sealed working space around the pipe, valve, etc. No work can ever begin in a bag until all seals are tight and there is no chance for air from inside the bag to escape outside the bag. Remember: the goal of using a glove bag is to totally isolate the air space of the small work area to control airborne asbestos fibers. Every action involving the bag must take this fact into consideration. No action which allows significant volumes of air to escape from the bag can be taken. To allow air out of the bag is to defeat the purpose of the device.

A glove bag is never reused. There is no realistic way to clean out a glove bag without creating the potential for a serious contamination disaster. This contamination is all the more hazardous because it is totally invisible and can spread throughout an entire building ultimately threatening people who have no idea they are breathing in carcinogenic asbestos fibers. The idea behind the glove bag is that it is low priced and disposable. Clean off the pipe covering, seal up the bag and throw it away properly. OSHA glovebag requirements are specified in 29 CFR 1926.1101 (g) (5) (B) (ii) A-B (iii) B (1-3).

Equipment and Supplies Needed:

- Glove Bags
- Asbestos debris disposal bags (properly labeled)
- Duct tape
- Razor knife, scraper (hand tools for removing insulation)
- A self-contained water spray device
- Sealant for exposed pipe cover ends
- Surfactant
- Rags
- HEPA filter vacuum cleaner
- Personal protective equipment: overalls, respirator, hard hats, etc. previously detailed

Step by Step Use of the Glove Bag:

1. Thinking the Job Through

A PAS Worker should always carefully think through a glove bag project before you begin the actual work. Do you have all the supplies you need? Is there an outlet or a suitable extension available for the HEPA filter vacuum cleaner? Is your water container full? Have you mixed a small amount of surfactant into the water? Do you have the proper respirator? Do you have enough sealant? Exactly how will you proceed? Go through each step in your mind as you view the area where the work will be done. Will you need ladders or scaffolding? What could go wrong? Are there any details of the glove bag process you're unsure of? If you have any questions, get the answers before you start the removal work. Remember, asbestos is a very dangerous substance. Make certain you know what you're doing.

2. Suiting Up

Put on your disposable coverall and shoe covers. Don your respirator and be certain to have the industrial hygienist fit test it. Now put on your disposable hood (head cover).

3. Packing the Tool Pouch

Inside the glove bag is a plastic pouch used to hold the tools you will need to do the removal job. For removing a pipe covering, you will need a razor knife, scrapers, etc., rags or paper towels and sealant. In the event you will be performing maintenance and need other tools, these should be put into the pouch before the work begins. The bag should NOT be opened after the work begins. Make sure you have what you need inside the bag before you start the job. This is one reason why it is important to think through each step of the job and anticipate your tool needs before you begin.

4. Slicing Flaps at the Open End of the Bag

The open end of the glove bag has to be sliced at each side to make flaps which will securely wrap around the pipe. The length of the slice depends upon the diameter of the pipe you want to wrap. Once both sides are sliced, you can fit the flaps around the pipe. At the top of the pipe, the two sides of the plastic bag can be brought together, then folded over on each other, much the same as you might fold down a sandwich bag.

5. Creating Airtight Seals with Duct Tape

Both ends of the bag must be tightly sealed with wraps of duct tape. The folded bag seam, along the top of the pipe, must also be tightly sealed. When deciding how to apply tape, keep in mind the goal: these seams must be airtight and must hold up, and remain airtight even when the bottom of the bag fills with debris. When in doubt, apply more tape.

6. Cutting a Hole for Water Spray and Vacuum

On one side of the glove bag you will see a round sticker which will say "Vacuum hose". With a razor knife, cut an "X" through this label. This hole will now be used for two purposes. First, you will insert the nozzle of the sprayer and apply amended water to the surface of the pipe covering. This moisture will help keep down the release of contamination when the asbestos materials are disturbed. It also helps soften some types of pipe covering which makes them easier to work with.

Once the spraying is complete, remove the nozzle from the bag and put the sprayer aside. Then, take the nozzle of the HEPA vacuum cleaner and place it a short way into the "vacuum hose" hole. Do not insert a great length of nozzle or hose into the bag. The idea is to get the metal or plastic end of the nozzle just a few inches into the bag.

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The vacuum nozzle must then be secured in this position with duct tape. Gather a small portion of the bag around the "vacuum hose" hole so that you make a strong duct tape seal which holds the nozzle firmly in this position. This duct tape seal must be airtight.

7. Starting Removal Work

At this point, this situation should exist: the glove bag is completely sealed around the pipe. The HEPA vacuum cleaner nozzle is in place in the side of the bag, but the vacuum is NOT turned on. There are no other holes or openings in the bag or around the pipe seals. The glove bag is now an airtight working space. Any contamination created inside the bag will stay there.

Once you are certain that everything is in order, you are ready to place your arms into the arms of the bag and begin work. Insert your arms slowly. You may find it a bit difficult to get your hands into the rubber gloves if it is a warm day or if your hands are slightly sweaty. Don't rush and don't jam your hands down into the gloves in a manner that could put undue pressure on the seals of the bag around the pipe. If you put both hands inside the bag, you will find it easy for each one to help the other in getting the gloves on. (The use of small amounts of corn starch will make the gloves slip on easily.) However, many authorities do not recommend this because after the job is done, spilled amounts of corn starch on the floor can be mistaken by inspectors and others as asbestos debris.

Once your arms are in, take a moment to move them around and get a feel for the inside of the bag. Remove the razor knife or other appropriate tool from the tool pouch and carefully begin the work of cutting into the asbestos covering.

It is always best to make complete circular cuts at either end of the encased pipe covering. Several inches of pipe covering should remain intact between each of these cuts and the sealed seam of the bag. All other work on the pipe covering will be done between these two cuts.

IMPORTANT: Work slowly and deliberately with knives and other sharp tools. You must be extremely careful not to slice or puncture the bag as you work. If a puncture does occur, immediately remove your hands and arms from the bag and seal up the puncture hole with duct tape. If the puncture or slice is very large, or if it caused significant amounts of asbestos debris to escape into the outside air, other emergency safety procedures may be necessary to contain this contamination. Such emergency concerns can be eliminated if you take great care not to puncture the bag.

8. Wiping Down and Applying a Sealant Inspection to be made by CAS prior to encapsulation

Once the section of pipe covering has been removed and dropped to the bottom of the bag, you must begin clean-up procedures inside the bag. Take the damp rag from the pouch and thoroughly wipe down the bare pipe. Then wipe down the first couple of feet of the sides of the glove bag. After the first wipe, take a second damp rag from the pouch and repeat the same procedures again.

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At this point, this situation should exist: the bare pipe is clean, but there are two raw surfaces of cut asbestos covering either end of the pipe sections. If the glove bags were removed, raw asbestos surfaces could release significant amounts of contamination into the air of the building space. Therefore they must be sealed. This is accomplished with a sealant in order to create an airtight seal over the asbestos.

9. Preparing to Remove the Bag

It is impossible to remove the bag without loosening the seals and creating the potential for the air inside the bag to rush outward. To help contain the bag's asbestos contamination at this point, the HEPA vacuum cleaner will be turned on to create a "negative pressure" inside the bag. By constantly removing the air inside the bag, the vacuum cleaner will force outside air to constantly rush in through the loosened seals. This inward rush of air helps to prevent the outward flow of any contaminated air. Before you proceed to the next step, you should have a proper 6 mil asbestos waste bag within easy reach.

10. Removing the Bag

When you turn on the vacuum cleaner, the bag will begin to "suck in" tightly to itself. The contaminated air which filled the bag is now taken into the vacuum cleaner and forced through the dense HEPA filters, which trap asbestos fibers.

Begin to gather the bag as tightly as you can and as close to the pipe as possible. Loosen the seals at one end of the pipe to allow that end of the bag to slide over. Continue to gather the upper end as tightly as you can, and twist it as high up as you can get it.

Then you must remove the vacuum cleaner nozzle from the bag. Turn off the vacuum and tightly wrap duct tape just forward of the nozzle's end. Make this wrap as tight as possible. You are using the duct tape as a kind of tourniquet to seal off this gather of plastic. Once this seal is complete, you can use a razor knife to cut the nozzle off.

Now take the 6 mil asbestos waste bag and slip it around the entire length of the glove bag hanging from the pipe. With the razor knife, sever the remaining bag seals around the pipe so that the glove bag drops completely into the asbestos waste bag. The waste bag is then twisted and tightly taped at the top.

11. Other Considerations

The preceding procedure discussed using a glove bag for a typical task: the removal of a single section of pipe covering. In other situations where you feel glove bags may be used, be sure you have taken into account all aspects of the problem and are certain the glove bags will properly contain contamination in that situation. If you are not sure how to determine if a glove bag can be safely used for a particular task, you should consult with a knowledgeable authority.

Reusing tools: For small jobs aimed at removing a small section of pipe covering, it is easiest to use inexpensive razor knives and other tools which may be left inside the glove bag and disposed of. However, in other cases, you may want to recover the tools or pass them from one bag to another. This poses a serious problem because there is no

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simple way to cut open a contaminated bag to remove tools without releasing significant amounts of contamination.

The following method is used to safely pass tools from one glove bag to another:

During the final clean up inside the bag, remove one of your arms from the bag's sleeve. As you do this, pull the sleeve and glove outward, so that you turn them inside out. Now, you have an inside out sleeve hanging outside the bag. This sleeve now forms a kind of bag of its own. With your other hand still inside the glove bag, you can place tools into the inside out sleeve. Then, remove your other hand from inside the bag. Next, use duct tape to securely wrap off the lower end of the inside out sleeve which now contains the tools. Make two wraps of tape approximately one inch apart. Once you have tightly tied off both sections with tape, cut between the taped sections with scissors. Now you have the tools inside a sealed bag formed by the sealed off section of the sleeve. This bag now can be placed in the tool pouch of another glove bag and opened when the bag is secured around another section of pipe. In this manner no contamination is released during transferring tools.

Documentation

1. **Asbestos Abatement Checklist - Office Report:**

This form must be completed prior to the start of each job. All of the questions require a "YES" answer prior to commencing the actual abatement.

2. **Asbestos Abatement Checklist - Field Report:**

This form must be completed daily for each removal job by the Field Supervisor. If any deficiencies are noted, they are to be corrected immediately and the deficiencies portion of the form must be completed. This checklist must be signed and dated by the person conducting the inspection and by a Manager reviewing the report.

3. **EPA - NESHAPS "Notification of Demolition and Renovation":**

This form must be completed, signed and submitted to the EPA, its designated agencies (state and local), and others as required prior to the initiation of asbestos abatement activities. This submittal has time restraint requirements in accordance with job parameters.

4. **Pre-Employment Physical Examination Documents:**

ALL employees involved in the asbestos project WILL submit to a pre-employment physical examination. We are required by Federal Law to submit specific documents to the physician, and in turn the physician is required to return to us an in-depth written opinion on the employee's physical condition, as it would relate to his asbestos exposure. This includes the written "Initial Medical Questionnaire".

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5. **Annual Physical Examination Offer:**

In addition to our requirement of a pre-employment physical, the Federal government also requires that all employees involved in removal work will be requested, IN WRITING to submit to a physical examination on an annual basis. Copies of the written request, or, if request is mailed to the employee a copy of the registered mail receipt must be maintained on file.

6. **Monitoring Records:**

A copy of all monitoring records must be maintained. These records are generated by the Industrial Hygienist hired to do the job site sampling. These monitoring records are to include excursion samples. All monitoring conducted in-house must also be recorded on the "Air Sample Analysis Report".

7. **Certifications:**

Copies of all haulers and dump site licenses and certifications must be acquired and maintained on file.

8. **Training Documents:**

Documentation of all employees' training and certifications must be copied and that documentation must be maintained on file.

9. **Regulated Area Entry Log:**

This log is to be maintained on all abatement projects that will have personnel entering a "Regulated Area".

10. **Differential Pressure Measurements:**

This document is to be maintained on all projects with enclosures where a negative pressure must be maintained inside the enclosure.

11. **Purchase Orders:**

Copies of purchase orders for all equipment and safety items purchased for the abatement project must be maintained in the asbestos file.

12. **Job Photo History: (where allowable)**

A complete photographic history of the abatement project must be maintained in the asbestos file. Photos must be taken during:

- monitoring operations
- actual removal operations
- clean up operations

The photos taken must show:

- i) proper monitoring
- ii) proper removal
- iii) personal protective equipment being used
- iv) proper removal equipment
- v) proper signs
- vi) proper enclosure

All photographs taken must display that the abatement activities were in compliance with all Federal, State, Local and PAS procedures.

13. **Physical Examination Invoice/Bill:**

A copy of each invoice/bill pertaining to medical services for physical examinations must be maintained in the asbestos file.

14. **Post Job Review Form:**

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Once the job has been completed and accepted by the Owner, the Branch/Project Manager is responsible to complete, sign and date the form.

15. **Asbestos Disposal/EPA NESHAPS Waste Shipment Record:**

This document is to be completed to ensure that adequate information is on file regarding the landfill and the hauler. This form is mandatory under the EPA NESHAPS regulations and must be maintained in the permanent file for a minimum of two years.

16. **Safety Inspection Checklist:**

Safety inspections to be conducted weekly as a minimum using this form (consider daily on all large jobs - 5 or more men for 5 or more days).

17. **Negative Exposure Assessment Form**

18. **Maintenance of Asbestos Abatement Documentation:**

- a) All asbestos abatement documents must be maintained on file indefinitely.
- b) Upon completion of each asbestos abatement project, all of the documentation from the project must be microfilmed.

Medical Requirements

PAS shall provide and make available, at no cost to the employee, a medical examination relative to exposure to asbestos; and shall institute a medical surveillance program for all employees engaged in work involving levels of asbestos at or above the permissible exposure level for 30 or more days per year.

Pre-Employment Physical Examination

Because the health of the worker currently suffering from an asbestos related disease would be seriously jeopardized by further exposure to asbestos dust, they shall be restricted from jobs presenting a health risk.

Also, all mechanics will be required to wear a respirator while they are involved in asbestos abatement activities and these mechanics must be physically capable of performing these work duties, while wearing a respirator. If the mechanic has lung disease, asbestosis, mesothelioma, cancers of esophagus, stomach, colon, or other organs related to asbestos exposure, the mechanics will be restricted from asbestos abatement activities and all activities that require wearing a respirator. However, he/she would not be restricted from any non-asbestos/non-respirator work activities and must be considered if there are available openings. This physical examination must include:

1. A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems
2. The completion of the attached standardized questionnaire
3. A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity and forced expiratory volume at one second
4. Any other examination or tests deemed necessary by examining physicians.

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Information Provided to the Physician:

PAS shall provide the following information to the examining physician:

1. A copy of the OSHA standard, 1926.1101 "Asbestos, Tremolite, Anthophyllite, and Actinolite" and Appendixes D, E, and I
2. A description of the affected employee's duties as they relate to employee's exposure
3. The employee's representative exposure level or anticipated exposure level
4. A description of any personal protective and respiratory equipment used or to be used and
5. Information from previous medical examinations of the affected employee that are not otherwise available to the examining physician.

Physician Written Opinion:

PAS shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

1. The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos.
2. Any recommended limitations on the employee or on the use of personal protective equipment such as respirators.
3. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may have resulted from asbestos exposure.
4. PAS shall also instruct the physician not to reveal in the written opinion given to us, specific findings or diagnoses unrelated to occupational exposure to asbestos.
5. PAS shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

PAS's Mandatory Examination Frequency:

Physical examinations, as described in this procedure are required for all new employees (pre-employment) that will be involved in asbestos abatement activities and it will be mandatory every year thereafter for those employees.

Exception: No pre-employment medical examination will be required of any prospective employee if adequate records show that the employee has been examined in accordance with Item 12 (a, b, c) of this procedure within the past one year period.

Medical Surveillance:

PAS shall institute a medical surveillance program for all employees engaged in work involving asbestos. PAS shall establish and maintain an accurate record for each employee. This record shall include as a minimum:

1. The name and social security number of the employee
2. A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any test and physician's recommendations
3. Physician's written opinions
4. Any employee's medical complaints related to exposure to asbestos

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5. A copy of the information provided to the physician as required by Item 12 (b).

Training

All employees involved in asbestos abatement activities will be thoroughly trained and certified in states where required. All training must be documented and the documentation must be maintained in the asbestos abatement file. The training must include as a minimum:

1. A review of all PAS asbestos abatement procedures.
2. Hands on training for all equipment (i.e., negative air system, HEPA filter vacuum, glove bags, etc.)
3. Respirator training to include fit testing
4. Complete state certification requirements (where required by state law).
5. A review and understanding of all of PAS's standard safety rules, practices and procedures as described in the PAS Accident Prevention Plan Manual. The confined space entry requirements, radiation exposure and other project specific requirements must be discussed.
6. Recognition of asbestos material.
7. Health hazards of asbestos, including the relationship between asbestos exposure, smoking and the disease.
8. The employee Hazardous Communication Program (HazCom)
9. Safety Orientation

It is the responsibility of PAS to instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

Monitoring:

All monitoring shall be done by an independent industry hygienist firm. However, for small abatement contracts, PAS trained personnel may perform area and personnel sampling. All air sampling and analytical procedures and intralaboratory quality control procedures will be in accordance with OSHA 1926.1101, Appendix A. All final clearance sampling, analysis and reporting shall be by an independent industrial hygienist firm.

Exposure Assessments and Monitoring

(General Monitoring Criteria):

1. Each employee who has a workplace or work operation where exposure monitoring is required shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.
2. Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee. (25% of workers minimum)
3. Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the

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basis of one or more samples representing 30 minutes exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

Exposure Assessment:

1. Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment" and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.
2. Basis on Initial Exposure: The initial exposure assessment shall be based on data derived from the following sources:
 - a) If feasible, the employer shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted.
 - b) In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "negative exposure assessment" conducted.
 - c) For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.
3. Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria:
 - a) Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or
 - b) Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job. The monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

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- c) The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30 minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

Periodic Monitoring

1. Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer has made a negative exposure assessment for the entire operation.
2. For all operations under the standard other than Class I and II operations, the employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.
3. Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the positive-pressure mode, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

Termination of Monitoring

1. If the periodic monitoring reveals that employee exposures, as indicated by statistically reliable measurement are below the permissible exposure limit and excursion limit, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.
2. Additional monitoring. The employer shall institute the exposure monitoring required whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in a new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

Observation of Monitoring

1. The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos, conducted in accordance with this section and shall also have access to the records thereof.
2. When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

Excursion Limit Sampling (STEL):

PAS shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fibers per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes. The representative 30-minute short-term employee exposure shall be determined on the basis of one or more samples representing 30-minute exposures associated with the operations that are most likely to produce exposures above the excursion limit for employees in the work area.

Environmental Monitoring:

Samples shall be collected from areas of the work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of the employees. The number of samples and the areas the samples are taken from shall be left to the discretion of the certified industrial hygienist. All samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open face filter holder.

Industrial Hygienist Air Monitoring Guidelines:

Responsibilities of Industrial Hygiene Consultants employed by PAS shall include, but not be limited to the following:

1. The consultant's current certificate of insurance must be on file with PAS prior to start of work.
2. Air monitoring shall be on-site service before, during and after removal, with the industrial hygiene consultant acting as a unbiased, third party to assist PAS in complying with all Federal, State and local regulations, as well as specific project specifications in meeting PAS obligations to their customer for asbestos abatement activities.
3. *All preliminary air sampling results and field collection data related to the job shall be provided in writing to the PAS supervisor on site each day, within 24 hours of the sample collection.*
4. Industrial hygiene consultants shall be expected to report any deficiency in work practices to the PAS supervisor on site as soon as possible.
5. In addition to the primary duty to take air samples, the industrial hygiene consultants shall be required to perform qualitative respirator fit tests, briefly instruct the employees in the proper use and care of respirators, to take differential pressure readings, assist PAS in complying with all applicable regulations, and to provide technical explanations concerning work procedures or regulatory compliance to the building owner or his representative.
6. Industrial hygiene consultant's job site personnel shall, in the performance of their duties, comply with all Federal, State and local regulations as well as all aspects of PAS operating procedures and maintain standards consistent with acceptable work practices. They shall be trained and licensed as required by Federal, State, and/or local laws. They shall be physically capable of wearing a respirator which provides sufficient protection for the anticipated work area fiber concentrations and supply PAS with a recent physical examination report.
7. Field sample data sheets submitted daily to the PAS on site supervisor must contain the following information:
 - a) Date of sample

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- b) Sample identification number
 - c) Description of sample location which can be referenced to a detailed sketch of the job site
 - d) Purpose of sample i.e., background, outside area, personal, or clearance
 - e) If a personal sample, include:
 - i) Full name of employee sampled
 - ii) Social security number of employee
 - iii) Description of work performed
 - iv) Type of respirator used
 - v) Calculated Time Weighted Average
 - f) Amount of air sampled in liters
 - g) Results of laboratory analysis: limits of detection should be consistent with amount of air sampled as well as other factors
 - h) Results of laboratory analysis of blanks
8. The final report summarizing results (must include information detailed in Item 7a-h) shall be submitted in duplicate to the PAS branch office and must conform to the following conditions prior to release of final payment:
- a) The final report must not be sent to owner direct, but submitted through proper channels by PAS unless specifically authorized in writing by PAS.
 - b) The final report must not contain recommendations as to PAS personnel or work methods, unless these recommendations are first communicated in writing to the PAS job site supervisor at the time of the observation. PAS supervisors are instructed to correct any situation which the consultant feels potentially jeopardizes the health and safety of PAS personnel, other contractors' personnel, or the public. If the consultant cannot reach agreement with the PAS job site supervisor, PAS management shall be contacted as soon as possible to resolve the disagreement.
 - c) Report shall not include recommendations regarding areas within a facility not directly pertaining to scope of work performed by PAS for the customer.
 - d) The report shall include brief daily descriptions of the work activities. Daily descriptions may include descriptions of where work is occurring, procedures used, and/or any unusual events which may have occurred. It should also include a description of events leading to recommendations made to PAS supervision and corrective actions taken in response to the recommendations.
 - e) The report shall include a description of air sampling methods, equipment used, calibration procedures, and laboratory procedures used.
 - f) The report shall be signed by a Certified Industrial Hygienist.
9. All data sheets, reports, invoices, etc. shall reference the appropriate PAS purchase order number and job number.
10. High flow pumps, operating at a flow rate of 8 to 12 liters per minute shall be used for background, contiguous and clearance sampling. The air monitoring personnel shall coordinate his operations with PAS operations so as to cause the least amount of waiting time for PAS personnel, especially during collection of final clearance samples. Personal samples and outside the work area samples shall be collected during the entire shift using appropriate flow rates.
11. Laboratory analysis shall be performed by a laboratory that is accredited by the National Bureau of Standards or interim accreditation by the EPA.

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12. Any changes, exceptions, or clarifications to these minimal guidelines must be approved in writing by the PAS Manger.

Employee Access

Every employee and former employee shall have reasonable access to any record required to be maintained by this program, including the employee's own exposure to asbestos fibers.

Work Performance

Pre Job Startup:

1. The Branch will complete the EPA NESHAPS "Notification of Demolition and Renovation" form and submit to the proper EPA region, local and state agencies within the required time frame.
2. The next step is to have all of the employees that will be involved in the asbestos project to submit to a pre-employment physical examination at our expense. The employee will be given our form, "Medical Release for Asbestos Work" to take with him to the physician. The report specifies the minimum requirements for this examination. The physician is required to send to us a written opinion that contains the results of the medical examination. This opinion must contain information as to whether or not the employee has any detected medical conditions that would place the employee at an increased risk of health impairment; any recommended limitation on the employee; a statement that the employee has been informed of the results of the medical examination. This physical examination is required for all new employees that will be involved in asbestos abatement activities and each year thereafter for those employees. (If the perspective employee has had a physical examination within the past year and his doctor will confirm his medical condition is acceptable for work in an asbestos environment, the employee can forgo an additional pre-employment physical examination.)
3. A PAS CAW should next obtain a certified hauler of hazardous waste to haul the asbestos debris to a certified dump. (For small jobs, the branch can haul the regulated asbestos containing materials in accordance with the procedures set forth in this Manual, "Clean Up, Disposal and Final Decontamination of the Work Area.") You shall obtain copies of the haulers and dump site certifications. These should be maintained in the asbestos abatement file.
 - The Branch Manager should initiate the "NESHAPS Waste Shipment Record" form and maintain on file with the certifications. When the material is taken to the landfill the form should be completed and signed by the landfill operator, and distributed as required and maintained in the asbestos abatement file.
4. The Manager must complete the "Asbestos Abatement Checklist - Office Report" and all questions must have a "YES" answer prior to procedures with the actual Job Start Up.
5. The Branch Manager should ensure that adequate copies of all the asbestos abatement forms are available for the job.

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Job Start-up:

1. Monitoring must be conducted in the proposed work area to establish base line fiber counts.
2. Any work which can be performed without touching the regulated asbestos containing material is to be performed first (erecting, barricades, posting the required warning signs, etc.)
3. Construct work enclosures and decontamination area. For Work Enclosures on jobs where glove bags will not be used you must build an airtight enclosure. This enclosure must be constructed of six (6) mil thickness plastic on the walls and ceiling. The floor area of the abatement area should also be covered with plastic sheeting (use as a minimum, two layers of six (6) mil plastic). This asbestos abatement work area must be totally enclosed to contain airborne fibers. This would include sealing all ventilation system openings with plastic and tape, as well as all mechanical system openings.

Decontamination Structure Construction:

This structure is attached to the work area enclosure and is designed to prevent the transport of asbestos fibers to the exterior environment. Three rooms make up the decontamination structure: clean room, shower room and dirty room.

Clean Room:

The clean room is the 3rd chamber in the structure and is the farthest away from the work enclosure. This is the room where the employees don the clean personal protective equipment when entering work and don clean street clothes after showering prior to leaving work.

Shower Room:

All contaminated clothing and personal protective equipment, except the respirator, must be removed before entering this area. The worker keeps his respirator on and showers to remove fibers from his body and the exterior of the respirator.

Dirty Room (contaminated area):

Dirty equipment (except respirators) and contaminated clothing are left in this chamber when employees leave the work area and prior to them entering the shower chamber. (This chamber is the closest to the work area.) Curtain doorways must be constructed between each of the chambers and the work area enclosure. These curtain doorways should consist of two sheets of six (6) mil polyethylene (plastic) suspended from the ceiling as close together as possible. These sheets should be anchored with duct tape at the ceiling and along one side only, in an alternating flap effect.

Work Area Preparation:

1. Remove all items from the work area that are "moveable".
2. Immovable items and water sensitive items should be completely wrapped in plastic and held in place by tape.
3. Turn off all electric power circuits feeding the work area. These circuits must be tagged and locked out in accordance with PAS lock out procedures.

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4. Seal off all ventilation and other mechanical system openings with plastic and secure with tape. Where possible, shut down and lock out controls to prevent inadvertent start-up and forced air penetration, or blow-off of plastic and tape.
5. Cover floors with six (6) mil thickness plastic and extend it to a minimum of 12" up the side walls of the enclosure.
6. Install the negative air filtration unit on the wall opposite the exit wall (see Equipment and Materials section of this program for complete installation details).
7. Prior to actually beginning the abatement project all precautions taken to prevent entry into the work area by unauthorized persons shall be checked to ensure everything is in order.

Removal:

1. Saturate the regulated asbestos containing material that is to be removed with water and a wetting agent mixture to maintain minimum airborne concentrations of fibers during removal.
2. Remove the regulated asbestos containing material with hand tools and place the debris in approved bags or containers or both, if required. Irregular shaped objects can be wrapped in six (6) mil polyethylene.
3. During the removal operation the personnel and environmental sampling must begin. The personnel sampling shall be used to determine the proper type respiratory protection.
4. Also, during the removal, the PAS job supervisor must complete the "Asbestos Abatement Checklist - Field Report". This form is to be completed daily and maintained in the asbestos file.

Encapsulation:

If the decision to encapsulate has been made, all loose or hanging insulation material must be hand removed, bagged, and properly disposed of before the actual encapsulation process begins. Before applying any sealer, we must be certain that the application of the sealer will not cause the friable base material to fall under its own weight. Should we doubt the ability of the base material to support the sealant, we should request direction from the owner before proceeding with the encapsulation work. If failure should occur during the process of the encapsulation work, stop work immediately and notify the owner.

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The next consideration is whether to use a bridging or a penetrating encapsulant, or both. The purpose of a bridging encapsulant is to form a tough membrane over the surface of the regulated asbestos containing material, which should prevent the release of asbestos fibers. A penetrating encapsulant is designed to saturate the material and as it dries, to bind the asbestos fibers to one another and to the other substances in the material. Penetrating encapsulants, in general, have lower viscosities than bridging encapsulants. Penetrating encapsulants usually also have a lower solid content than bridging encapsulants. Bridging encapsulants are almost always pigmented for aesthetic purposes. Almost no penetrating encapsulants contain pigment because its presence would inhibit their penetration. Dyes can be added to penetrating encapsulants to color them when needed. This would serve as a visual aid to ensure that all surfaces have been properly covered.

The choice of what kind of encapsulant (penetrating/bridging) to use often depends on the characteristics of the material which is to be encapsulated. A comparison of the qualities of each are as follows:

	<u>BRIDGING</u>	<u>PENETRATING</u>
• Improves cohesive strength of material	NO	YES
• Appropriate for material which adheres poorly to substrate	NO	YES
• Appropriate for water damaged material	NO	NO
• Allows fiber release readily if damaged	YES	SOMETIMES
• Impairs acoustic insulating properties of material	YES	YES
• Preferable for cementitious materials	YES	NO
• Appropriate for material which has already been painted or encapsulated	YES	NO

The best way to choose an encapsulant is to field test it on a small portion of the material to be encapsulated using the same technique you expect to use on the entire surface area. At this point, the drying times, pressure settings, adhesion and coating thickness of the encapsulants can be compared and the most appropriate selected.

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The use of a roller or brush on friable asbestos containing materials is very likely to lead to dangerous fiber release. Encapsulants must, therefore, be applied by airless type spray equipment.

Considerations for which encapsulant to use:

- Can be applied by airless type spray equipment.
- Should be able to withstand some abuse without allowing the release of any fibers.
- Must be water soluble when cured.
- Must be durable when the potential re-coating is to be allowed.
- Should not destroy the acoustical properties of the regulated asbestos containing material. In cases where this is a major consideration an acoustical engineer should be consulted.

Application of Encapsulant:

The pressure of airless spray equipment is adjustable. The correct nozzle pressure varies from 500 to 2500 psi, depending primarily on the encapsulant's viscosity and secondarily on its solids content. In general, the lower a substance's viscosity and percentage of solids, the lower the pressure at which it can be sprayed. Since higher pressures cause more asbestos fibers to be blow away from the surface, the equipment should be set at the lowest operable pressure.

The second factor that affects application is the size of the tip of the airless spray gun. Like pressure settings, tip sizes should be selected on the basis of the viscosity and percent of solids of an encapsulant. One way to test for proper tip size is to spray the encapsulant briefly onto a surface from about twelve inches away. An appropriately sized tip will spray the encapsulant in a fan approximately eight inches wide, it will also distribute the encapsulant uniformly within the fan. An improper tip will often concentrate the encapsulant at the fan's edges.

Particularly on more friable material, it is usually a good practice to first apply a light mist coat of encapsulant. The purpose of this preliminary coat is to moisten and seal loose fibers and to keep them from breaking away from the surface. This mist coat should be applied in three or four quick passes with the gun held 18 to 24 inches from the surface.

After an area of 16 to 20 square feet has been given the mist coat, the applicator can proceed immediately to apply a heavier coating of the encapsulant, using eight or ten passes with the gun held 10 to 12 inches from the material. The gun should be kept in constant motion to create a smooth and even coat.

This two step application is considered to be the first coat. Most encapsulants should be applied in two or three separate coats, with time allowed after each coat for the encapsulant to cure. Note that the amount of drying time varies from encapsulant to encapsulant, and that manufacturer's recommendations should be followed. In general, penetrating encapsulants should be allowed to cure for only about four hours before the second coat is applied; if the first coat cures completely, it will not allow the second coat to penetrate into the material. Bridging encapsulants should be allowed to cure somewhat longer before another coat is added. Each

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subsequent coat should be applied at a 90 degree angle to the direction of the preceding coat application, to assure a complete coverage of the regulated asbestos containing material.

It is important not to apply too much encapsulant in each coat. A penetrating encapsulant, if applied too thickly can block the surface of the material as it cures, preventing any subsequent coats from penetrating into the material. Further, over application of a penetrating encapsulant can cause the regulated asbestos containing material to become too wet and to break loose from the substrate. This second problem is also applicable for bridging encapsulants.

One method for preventing over application is for the sprayer to keep a mental note of the number of passes made with the spray gun. An experienced applicator will also be able to tell by listening to the sound the encapsulant makes when it hits the surface: there will be a distinct sound change when the material becomes saturated. Third, the changing color of the material as it is sealed can give an indication of how much encapsulant constitutes a coat (if a penetrating encapsulant is unpigmented, food coloring or a similar dye, not a pigment, can be added to give it a slight tint). Applying a different color encapsulant for each coat will help to ensure complete coverage.

Dilution also plays an important role in encapsulant application. Some encapsulants must be diluted with water. Even if dilution is not required, it often makes it possible to apply the encapsulant at a lower pressure to reduce the release of fibers. Dilution may also improve the penetrating quality of the encapsulant. Most manufacturers give recommendations concerning dilution on the labels of their encapsulants. Some experimentation will also help determine when dilution is useful.

Most manufacturers will provide, on request, a data sheet including recommendations for tip size, spray pressure, number of coats to be applied, drying time, and so forth. We should obtain this information from the manufacturer of the encapsulant that we purchase.

One coat coverage rates for most penetrating encapsulants range from 10 to 40 square feet of friable regulated asbestos containing material per gallon of encapsulant. Bridging encapsulants may yield slightly higher coverage, with one gallon providing one coat coverage of 20 to 40 square feet. These figures tend to be lower than manufacturers may claim.

The coverage rate of a penetrating encapsulant is dependent primarily on the thickness of the material to be encapsulated and the ability of the encapsulant to wet the material. The thicker the material, the more encapsulant will be required to fill it completely and penetrate to the substrate. Better penetrating encapsulants often have lower coverage rates because they penetrate more deeply into the material.

Coverage with bridging encapsulants is also affected by such variables as the degree of their penetration and the texture of the surface. Unsurprisingly, the rate of coverage tends to be lower on irregular surfaces.

It is often difficult to encapsulate regulated asbestos containing material in humid air, since the material may already be damp and thus tend to absorb much less of the encapsulant than if encapsulation were performed under dry conditions. This problem can be caused by the

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humidity of the outside air or by conditions within a building. To avoid the first problem, encapsulation jobs should be undertaken on dry days as much as possible. For the second problem, measures can be taken to reduce the indoor humidity.

Clean Up, Disposal and Final Decontamination of the Work Area:

At the completion of the abatement process, the work area is ready to be cleaned in preparation for its restoration to normal use. The purpose of "clean-up" is to ensure that post-abatement levels of airborne asbestos fibers are at or below those levels monitored before the work began. Make certain that the contract has specific criteria, with regard to "clean", and that criteria can reasonably be expected to attain.

Following the abatement process the entire area will be wet cleaned and vacuumed with a HEPA filter vacuum cleaner.

After a thorough cleaning is complete, visual inspection should be made to ensure dust free conditions. If the visual inspection does not reveal any dust or other signs of contamination, the final encapsulant shall be applied. This final encapsulant shall be selected with regard to the replacement materials to be reapplied and to the contract requirements.

The final testing shall take place under active agitation of the air in the workplace. Fans can be used to create this condition. *The final test will consist of taking air samples in the work space which must show contamination levels do not exceed those levels monitored before the work began or 0.1 fibers/cm³ or less.* If the results of the final testing are not satisfactory, the thorough wet cleaning and vacuuming shall be repeated until the required decontamination levels have been achieved. After the decontamination levels specified have been confirmed through final testing *and the owner has accepted the area, the plastic enclosure shall then be removed.* The plastic, tape and other material from the area shall be bagged and disposed of as asbestos waste.

The safe and accepted procedures for the disposal of regulated asbestos containing debris are described in EPA Regulations 40 CFR, Part 61, entitled National Emission Standards for Hazardous Air Pollutants. There also may be state and/or local regulations which may be more stringent than the aforementioned EPA regulations. It is imperative that you know and understand these regulations. There also may be licensing requirements that mandate you secure a Federal, State or local license to haul asbestos. **CHECK ALL REQUIREMENTS.**

For large projects you will be required to hire an asbestos waste hauler (one that meets all EPA, State and local requirements - certified) to dispose of the asbestos debris. You will be responsible for the following:

- Acquire copies of all documents that certify the hauler is approved by the EPA, State and/or local agencies to haul asbestos.
- Acquire a certificate of insurance from the hauler naming PAS as a "named additional insured", the coverage is primary and they waive their rights of subrogation (make certain "asbestos waste" is not excluded from the policy).
- Ensure the asbestos debris is being taken to an EPA approved dump site.

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- Acquire copies of the landfill EPA certification and dump tickets signed by the landfill tally clerk.
- Waste Shipment Record, as required by NESHAPS regulations shall be completed, distributed as required, and maintained in the asbestos abatement file.
- Ensure that copies of all documents related to the disposal of the asbestos waste are made available to the owner because it is the owner's responsibility to account for the asbestos debris. See Site specific Plan in this submittal.

For small projects, PAS can haul the asbestos debris from the removal site to the EPA approved landfill. Again, the regulations in EPA 40 CFR, Part 61, as well as any and all Federal, State and local regulations and licensing requirements must be adhered to. You will be responsible for the following:

1. All asbestos waste shall be placed in a tightly sealed containers in a wet condition before they are removed from the work area. Waste containers shall consist of not less than two six mil thick plastic bags unless the waste contains rigid or heavy objects that are likely to tear the bags. If bag damage is likely to occur, the waste shall be placed in fiber or metal containers that are equipped with a plastic bag liner and a tight fitting lid which can be firmly fastened in position. Large sections of structural materials, such as pipe or duct work that has been removed with friable regulated asbestos containing materials left in place, may be tightly wrapped in not less than a double layer of six mil thick plastic sheeting for disposal if they cannot be placed in containers.
2. The exterior surface of each container or individually wrapped object shall be cleaned free of all visible residue by wet cleaning methods. The three (3) mandatory labels (OSHA, DOT, and EPA - NESHAPS) shall be security attached to each container or wrapping before its removal from the work area for transport purposes.
3. Each waste container shall be carefully handled and transported in order to prevent breaking or otherwise becomes unable to completely contain the waste. If this occurs, the waste shall be immediately transferred into another sealed container that complies with the requirements of item (1) and (2). Any asbestos materials that come out of the original container shall be immediately cleaned up after being saturated with water and placed in the replacement container.

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4. The Waste Shipment Record, as required by NESHAPS regulations, shall be completed, distributed as required and maintained in the asbestos abatement file.
5. Asbestos containing waste shall not be transported from a work site or disposed of unless the waste generator (owner) has received prior approval from the appropriate Federal, State or local agency for its disposal at an approved disposal site. Application for disposal approval shall be made in writing and contain the following information:
 - a) The type of waste intended to be disposed of and the name of the premises at which it was generated.
 - b) The amount of waste designed for disposal expressed either as cubic yards of containerized materials or lineal feet of individually wrapped materials.
 - c) The disposal site to which the waste is to be transported.
 - d) The time period over which the waste is expected to be transported to the disposal site.
 - e) The name of the waste generator (owner), include generator number, and the person responsible for transporting the waste to the disposal site.
6. Waste shall be transported in vehicles that have completely enclosed cargo areas and are licensed and insured to haul asbestos. **Do not transport asbestos in an open bed pick-up truck!**
7. All visible residue remaining in the vehicle cargo area after the waste has been deposited at the disposal area shall be immediately removed by wet cleaning methods and disposed of in accordance with all regulations.
8. Employees loading and unloading the asbestos from the trucks will wear a negative pressure respirator as a minimum. If a spill occurs and the truck must be cleaned, the employee cleaning the truck must wear a PAPR, eye protection and coveralls with boots and hood. The transport vehicle must be marked in accordance with 40 CFR 61.150.
9. Management will be responsible and will be required to have copies of the motor vehicle records of each employee that will be allowed to transport asbestos waste from the job site. If a employee's MVR contains any of the following, that person will not be allowed to drive a vehicle transporting asbestos:
 - Any DUI offense (ever)
 - 2 or more accidents in the last 3 years
 - More than 2 moving violations (ever)

MVR's are to be requested through the Lockton Insurance Agency. The request should be submitted in writing with an enlarged copy of the employee's drivers license.

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These driver requirements are mandated by the insurance carrier. Therefore, if these requirements are not followed, the insurance would not be valid.

- 10) As stated in Item 5, asbestos must only be transported in a vehicle with a closed cargo area.
- Do not haul asbestos in a pick-up truck.
 - Do not haul asbestos in a passenger vehicle.
 - Do not haul asbestos in a "short term" rental vehicle, i.e. U-Haul, Jartran, etc.

Spill Contingency Plan for All Drivers:

There are a number of different situations that can occur with a spill or breakage of containers of asbestos waste material during transportation. Staying calm and acting in a smooth efficient manner will help contain the damage to a minimum in all emergency situations. The manifested asbestos waste being hauled is packaged in its own containers and then loaded into fully enclosed vehicles therefore greatly reducing the likelihood of spillage outside the vehicle. The following steps are to be implemented in case of a spill or breakage of containers.

1. Determine if there are injuries, notify the police and the PAS office by using local freeway call box, telephone booth, or cellular car phone. If injuries are not life threatening, turn your attention to the container.
2. Put on your personal protection equipment and respirator for inspection of container.
3. Has the load been comprised (container, bags or barrels damaged)? If so, try to determine the extent of the damage. Was the vehicle container the only container broken or were the asbestos containers broken?
4. If the vehicle container was the only thing compromised then set out emergency markers and telephone the PAS office.
5. If the asbestos containers were broken, cover all asbestos waste with plastic to minimize asbestos from being spread by the wind. If possible, spray with amended water before covering and telephone the PAS office or PAS emergency response personnel.
6. The PAS office and the PAS emergency response personnel telephone numbers will be permanently displayed inside the cab of each vehicle for the use of police or paramedics if the vehicle driver is unconscious or unable to perform the initial response action.

The public, customers and your safety is the main concern of PAS. The Hudson sprayer and the plastic sheeting that are in the truck is the main defense for an asbestos spill until the emergency response team gets to the scene. If you can wet the asbestos and cover it before the wind starts to spread it out over a bigger area, you have done your job until the proper manpower and equipment gets to the spill site.

The following equipment will be carried for initial spill response:

ASBESTOS ABATEMENT PROCEDURES

- Personal protection equipment (disposable suits with hoods, boots, gloves and respirators with HEPA cartridges).
- Duct Tape
- 6 mil Poly
- Container with amended water (Hudson sprayer)
- ACM bags

Post Job Review Form:

The abatement project is now completed and it is the responsibility of the Branch Manager to complete the "Post Job Review Form". This form must be signed and dated and distributed as required.

References Standards:

Unless otherwise indicated, all referenced standards shall be the latest edition available at the time of bidding. Any requirements of this program shall in no way invalidate the minimum requirements of the referenced standards.

Comply with the provisions of the following codes and standards. Where conflict among requirements or this program exists, the most stringent requirement shall apply.

ANSI Z 9.2: American National Standard "Fundamentals Governing the Design and Operation of Local Exhaust Systems

EPA: Environmental Protection Agency 40 CFR Part 61 Subpart M, National Emission Standards for Hazardous Air Pollutants.

Environmental Protection Agency 40 CFR Part 763 Subpart E, Regulated Asbestos Containing Materials in Schools, Final Rule and Notice

NIOSH: National Institute of Occupational Safety and Health Manual of Analytical Methods (7400 Methods)

OSHA: Occupational Safety and Health Standards 29 CFR 1926.1101
Occupational Safety and Health Standards 29 CFR 1926.1101
Compilation of Text
Occupational Safety and Health Standards 29 CFR 1910.1001
Occupational Safety and Health Standards 29 CFR 1915.
Occupational Safety and Health Standards 29 CFR 1910.134
Respiratory Protection

DOT: US Department of Transportation Regulations 49 CFR 171 and 172, Shippers - Hazardous Materials

US Department of Transportation Regulations 49 CFR 173, 174, 175, 176, 177, Shippers - General requirements for Shipments and packaging; carriage by rail, carriage by aircraft, carriage by vehicle and carriage by public highway

ASBESTOS ABATEMENT PROCEDURES

Hazardous Materials Regulations, Amendments and Reportable Quantities, 51 FR 42176 (1986)

State and Local Rules and Regulations, if applicable





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02075 Revised Lead Containing Paint Control Work Plan



Revised 8/11/03

Section 02075

**Lead Containing Paint (LCP) Work Control Plan
Thea Foss and Wheeler-Osgood Waterways Remediation
300 Middle Water Way
Tacoma WA 98421
G235-03**

1.0 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION.

The site consists asbestos abatement prior to demolition of 300 Water Way in Tacoma WA. Our work consists of asbestos abatement of flooring, piping, roofing. Lead abatement activities are limited to disturbance of existing painted surfaces. The site is to be demolished by RW Rhine. The Lead Containing Paint (LCP) Work Control Plan is a response to section 02075 requirements.

PAS will begin the project with the assumption, prior to initial monitoring, that the site will exceed the PEL of 30 micrograms per cubic meter, and not in excess of a factor of 10 (anticipated 300ug/m3). All protective measures for the higher level will initially be employed. Additionally this work is to be performed as an asbestos abatement project and workers will be protected with appropriate PPE for asbestos.

2.0 HAZARD ASSESSMENT AND RISK ANALYSIS

The workers and supervisors may encounter, disturb or perform functions in the immediate vicinity of lead containing building materials. Measures to protect the workers and supervisory personnel will be in strict compliance with OSHA & EPA regulations. Air monitoring will be performed during this work to establish actual exposure by lead.

3.0 TRAINING

Site workers will receive training in hazard communication, use of respirators, safety training with regard to lead exposure in full compliance with OSHA regulations. The training will encompass the specific hazards of the site work, protective measures to be taken, medical surveillance, engineering controls and work procedures, and the worker's rights concerning hazardous materials (lead). Training covers the contents of 29 CFR 1962.62 and WAC 296-155-176.

4.0 PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORS

The worker will have been trained in the use of the appropriate respirator with the proper fit. Respirators will be NIOSH approved for use in the lead environment. Prior to the initial air monitoring results the workers will wear PAPR respirators. After monitoring has been established, the workers may wear, with permissible exposure levels, half face respirators. The respirators are to be North half- face with P100 filters.

COVERALLS

Workers will wear full body disposable suits while in the designated work area.

BOOTS

Boots or foot wear that becomes contaminated will be left in the equipment cleaning area and disposed of as contaminated at the end of the project or properly cleaned.

HARD HATS

Hard hats are required while in the work area where a reasonable assumption of danger exists.

GOGGLES & GLOVES

Goggles and gloves are required if the superintendent suspects exposure to lead-based paint surface may exceed control levels during the abatement process. Goggles are not required in Type "C" work or APR work.

Personal protective equipment is to stay in the work area to be cleaned or disposed of as contaminated material.

5.0 PERSONNEL HYGIENE AND DECONTAMINATION

PASs policy is to ensure that the site maintains basic hygiene practices to minimize the absorption of lead from the inhalation or ingestion that accumulates on the worker's clothes or bodies.

In situations where the lead exposure is above the action level of 30 ug/m3 workers will wear the protective clothing described above in Section D. In these circumstances a designated change area will be established with the appropriate shower and 'decon' facility. Hand washing will be provided where showers are not. The competent person, supervisor, will ensure that all workers wash after the shift and upon leaving the work area.

6.0 EXPOSURE MONITORING/AIR SAMPLING PROGRAM

Workers will assume that the initial work procedures will exceed the action level of 30 ug/m3 (TWA). A representative worker will wear a personal air monitor to establish the anticipated exposure for similar work and work practices. Air monitoring will also be conducted outside the work area to determine potential contamination. If monitoring shows levels above 30 ug/m3 then work practices or containment protocol will be changed immediately. This is not anticipated with manual removal.

Both area and personal air sampling will be conducted throughout the project as deemed necessary by the Competent Person (CP) and the POS Engineer. All area air monitoring and personnel monitoring will be conducted by the CP under the supervision of the Pacific Rim Environmental. The CP will perform lead exposure assessment for each representative process. The CP will collect personal air samples on workers who are anticipated to have the greater risk of exposure. Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with WAC 296-155-176. Samples will be representative of the employee's work tasks. Breathing zone will be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and the center at the nose or mouth of an employee. A minimum of 25% of workers will be monitored.

If the monitoring is below the action level with statistically reliable measurements then the monitoring may be discontinued. Samples will be submitted to Pacific Rim Environmental for analysis. Lead sampling and analysis will be done according to NIOSH Method 7082.

The CP will report all sampling results to Manson Construction within 24 hours after the air samples were taken, He/she will immediately report of any lead concentrations exceeding the action level of 30 ug/m3 outside the lead control area. The CIH will also explain the measures and corrective actions made to minimize or eliminate lead dust emissions. If the area air monitoring results are above the action level of 30 ug/m3, the CP will immediately reassess work practices and make correction to reduce dust emissions.

Written results will be submitted to the contracting officer within 3 working days. In addition, within three (3) working days after the completion of the exposure assessment the employer will notify each employee in writing of the results that represent that employee's exposure.

Sampling records will include the date(s), number, duration, location and results of each of the samples taken, including a description of the sampling procedure. Information for personal samples will include employee name, social security number, and job classification of the employee monitored. PAS will maintain monitoring and other exposure assessment records

7.0 ADMINISTRATIVE CONTROLS

PAS will not use administrative controls during this project. If using administrative controls becomes necessary, as determined by the CIH, a job rotation schedule with employee identification and duration of exposure at each job will be implemented. It should be noted that PPE and engineering controls for asbestos abatement activities may exceed the requirements of Lead based paint disturbance for protection of the worker and the environment.

8.0 MEDICAL SURVEILLANCE/MEDICAL REMOVAL PROTECTION

Workers, who may be exposed to lead based paint dust, will be required to undergo a medical monitoring for lead and protoporphyrin levels. Workers will be removed from the work area when the blood level is at or above 50 micrograms of lead per deciliter of blood. Full medical surveillance is to be provided to workers exposed at or above the action level of 30 micrograms per cubic meter (time weighted average).

9.0 STANDARD OPERATING PROCEDURES/ENGINEERING CONTROLS AND WORK PROCEDURES

GENERAL

- Workers shall not eat, drink, smoke or chew, apply cosmetics in the work area.
- The work area shall be kept clean and free of debris at all time.
- Temporary facilities shall be installed, maintained and protected in a manner that is safe, non-hazardous and protective of people and property.
- Disconnect electrical systems in areas where wet removal is employed and provide temporary services. USE GCFI protection for equipment on this project.

SITE CONTROL MEASURES

PAS's policy is to minimize and neutralize the generation of contaminants and dust in lead abatement. Removed Lead-based paint building materials as hazards material is not anticipated for this project. Materials removed are being handled as ACM and being disposed as asbestos in accordance with our Asbestos Abatement Work plan.

SIGNAGE

During the project, precaution signs will be posted in each demarcated area stating:

WARNING
LEAD WORK AREA POISON
NO SMOKING OR EATING

The signs will be posted in clearly visible areas at work entrances.

10.0 EMERGENCY PLAN

PAS will post written emergency procedures within each Work Area. The list will include all emergency contact names and contact phone numbers.

Potential emergencies include injuries on the job such as cuts, bruises, broken bones, etc. Other emergencies may include fire, and vehicle accidents. In the event of such emergencies first aid will be rendered as necessary to support life, if feasible.

First aid kits will be included at the work site. For minor injuries, such as small cuts and scrapes, the supervisor will render first aid. For more significant injuries, the employees will be stabilized if possible and the appropriate emergency response personnel will be notified.

11.0 SITE HOUSEKEEPING PROCEDURES

Surfaces of the lead control area will be maintained as free of accumulation of paint chips and dust and restrict the spread of dust and debris over the work area as practicable. The use of compressed air to clean up the area is strictly prohibited. At the end of each shift, clean the area of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner, wet mopping the area, or cleanup by other appropriate means. All personnel engaged in cleaning up scrap and demolition debris will use respirators and protective clothing.

12.0 EQUIPMENT DECONTAMINATION

Equipment that is used where the lead exposure is above the action level of 30 $\mu\text{g}/\text{m}^3$ shall be thoroughly vacuumed with a HEPA vacuum to remove any residual paint debris and wiped down with 5% Trisodium Phosphate solution (TSP).

13.0 HAZARDOUS WASTE DISPOSAL

The TCLP has been collected and analyzed for the waste stream for disposal of all debris to be disposed of and is below regulated levels, therefore the waste may be disposed of as CDL. NVL Laboratories has performed TCLP analysis and determined the lead content of removed building components are below regulated levels. The lead content is under five parts per million and the waste will be treated as Asbestos Containing Material where appropriate or Construction debris for remaining building material not containing asbestos.

Additionally the XRF report is attached which indicates that the asbestos abated materials are not to be treated as LBP materials except for window. The windows will be used to exhaust HEPA units negative air and are not to be abated (reported as ND for asbestos).

14.0 RECORD KEEPING

Employers must retain the following employee information for at least 30 years or for 30 years following end of employment, whichever is longer:

- a. Name, social security number, and job description,
- b. Copy of physician's medical opinion.
- c. Results of airborne exposure monitoring done for that employee and representative values provided to the physician.
- d. Any employee complaints related to exposure to lead.

PAS officer has signed a letter certifying PAS will comply with WAC regulation regarding recordkeeping.



Section 4 North Respirators Sheet

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North Respirators

Click on the picture or name of the product to get more information and pricing.

Full Face Respirators



7600 Series: Full facepiece respirators are designed to provide eye, face and respiratory protection while providing optimum comfort.



5400 Series: Provides eye, face and respiratory protection.

Half Face Respirators



7700 Series: The North 7700 Series is a very comfortable half mask respirator.



5500 Series: The North 5500 incorporates the anatomic design of the 7700 Series with an extremely soft, hypoallergenic elastomer to provide comfort, fit and ease of maintenance.



7190 N99: For solids such as welding fumes and non-oil particulates. Fits easily under a welding hood. 42 CFR 84 Approved.

Cartridges



75SCP100: Organic Vapor, Chlorine, Hydrogen Chloride, Sulfur Dioxide, Hydrogen Sulfide (Escape) Hydrogen Fluoride, Chlorine Dioxide, Ammonia, Methylamine and Formaldehyde Cartridge, with P100 Particulate Filter.



7581P100: Organic Vapor Cartridge, with P100 Particulate Filter (99.97% Minimum Filter Efficiency).



7582P100: Chlorine, Hydrogen Chloride, Sulfur Dioxide, Hydrogen Fluoride, Chlorine Dioxide, Formaldehyde Cartridge, with P100 Particulate Filter (99.97% Minimum Filter Efficiency).



7583P100: Organic Vapor, Chlorine, Hydrogen Chloride, Sulfur Dioxide, Hydrogen Fluoride, Chlorine Dioxide Cartridge, with P100 Particulate Filter (99.97% Minimum Filter Efficiency).



7584P100: Ammonia, Methylamine Cartridge, with P100 Particulate Filter (99.97% Minimum Filter Efficiency).

75852P100: Mercury Vapor, Chlorine Cartridge with End-of Service-Life Indicator, with P100 Particulate



Section 02075 XRF Report

Pacific Rim Environmental, Inc.

6510 Southcenter Blvd, Suite #4
Tukwila, WA 98188
pre@pacrimenv.com

Report No:
PAS10003

Lead-Based Paint Inspection Report

Inspection date: Thursday, July 31, 2003

Inspector: Lance Kiblinger

Client: P.A.S. , PRE# 12850

License no.: WA-03-0720044884

Site address: Thea Foss Waterway Project
Vacant Office Building

Inspection Notes:

The field inspection was performed by Lance Kiblinger, EPA certified Risk Assessor. Paint samples were evaluated with a NITON X-Ray Fluorescence Spectrometer (XRF) model XL-300, serial number U3681NR4132

Only those building components that were to be removed by Performance Abatement Services (PAS) were tested. No testing was performed on the exterior of the building. The interior window components (i.e. Casings, sills, sashes, etc.) were found to have lead-based paints. None of the other components tested were found to have lead-based paints. EPA/HUD standard uses a criterion of 5,000 parts per million dry weight or 1.00 milligrams per square centimeter (1.00 mg/cm²) for lead-based paint, anything below this standard is considered negative for lead-based paint.

It is important to keep in mind that although the EPA/HUD standard uses a criterion of 5,000 parts per million dry weight or 1.00 milligrams per square centimeter (1.00 mg/cm²) for lead-based paint, there still may be lead present in those results reported as negative. In the event that lead is present, Federal OSHA and Washington State Department of Labor & Industries regulations will still apply, since neither agency has established a concentration of lead in paint below which the lead in construction standards do not apply. Workers wearing respiratory protection and who have received proper training in the handling of lead contaminated materials must be used for any construction activities (including manual scraping, manual/power sanding, heat gun applications, general cleanup, and demolition) that affect a paint film containing lead.

Limitations:

This Lead-Based Paint Inspection Report has been prepared for the exclusive use of the Client named herein at the specified Site Address. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Pacific Rim Environmental Inc. (PRE) accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report is based upon and conducted in accordance with HUD Guidelines and EPA rules in effect at the time of this inspection. PRE has no duty to update this report based on subsequent regulatory changes.

PRE is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. Areas not accessible at the time of the inspection are excluded from this report. PRE also notes that the facts and conditions referenced in this report may change over time, and that the conclusions set forth here are applicable to the facts and conditions as described only at the time of this report. We believe that the conditions stated here are factual, but no guarantee is made or implied.

Signed:



Lance Kiblinger

8-12-03

Date

Attached: Sample Log

SAMPLE LOG

Sample Log Attachment

Inspection date: Thursday, July 31, 2003

Inspector: Lance Kiblinger

Client: P.A.S. , PRE# 12850

License no.: WA-03-0720044884

Site address: Thea Foss Waterway Project
Vacant Office Building

Report No:
PAS10003

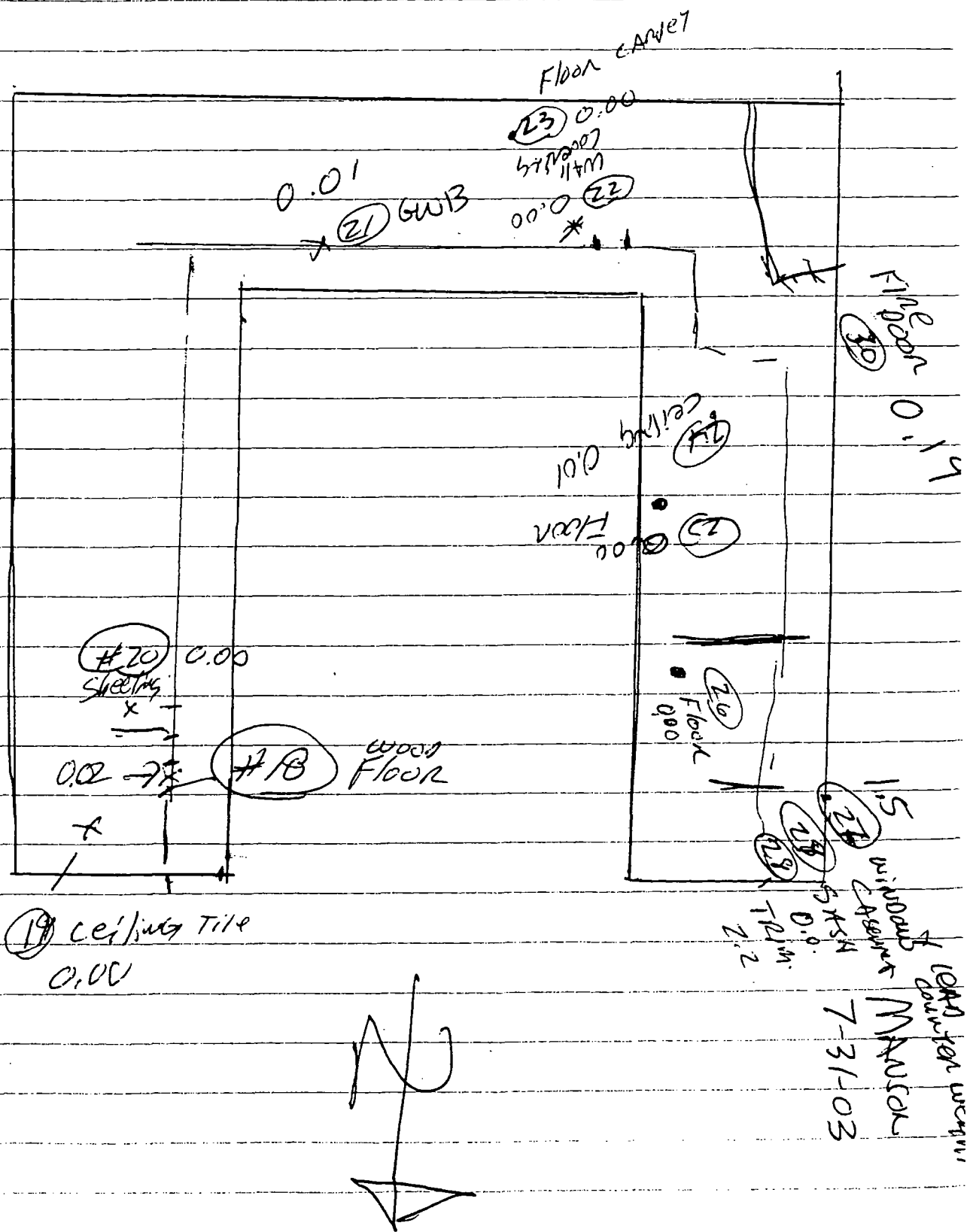
Sample No.	Unit	Floor	Room	Side	Component	Substrate	Condition	Color	Pb (mg/cm ²)	Conclusion
P-17			Shutter Calibration						0	Undetermined
P-18	VOB	1	HALLWAY		FLOOR	WOOD	INTACT	GREEN	0.02	Negative
P-19	VOB	1	LIVING RM		CEILING	WOOD	INTACT	WHITE	0	Negative
P-20	VOB	1	KITCHEN		FLOOR	WOOD	INTACT	WHITE	0	Negative
P-21	VOB	1	HALLWAY		WALL	DRYWALL	INTACT	WHITE	0.01	Negative
P-22	VOB	1	BEDROOM-2		WALL	DRYWALL	INTACT	WHITE	0	Negative
P-23	VOB	1	BEDROOM-2		FLOOR	WOOD	INTACT	GREY	0	Negative
P-24	VOB	1	FAMILY RM		CEILING	WOOD	INTACT	WHITE	0.01	Negative
P-25	VOB	1	ENTRY		FLOOR	WOOD	INTACT	GREY	0	Negative
P-26	VOB	1	MISC RM-3		FLOOR	WOOD	INTACT	BROWN	0	Negative
P-27	VOB	1	MISC RM-4		WINDOW CASING	WOOD	INTACT	WHITE	1.52	Positive
P-28	VOB	1	MISC RM-4		WINDOW SILL	WOOD	INTACT	WHITE	0.03	Negative
P-29	VOB	1	MISC RM-4		WINDOW SASH	WOOD	INTACT	WHITE	2.22	Positive
P-30	VOB	1	FAMILY RM		DOOR	METAL	INTACT	GREEN	0.19	Negative

Sample No:	Unit:	Floor:	Room:	Side:	Component:	Substrate:	Condition:	Color:	Pb (mg/cm ²):	Conclusion:
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End of Sample Log

SAMPLE LOCATION DRAWING

Site 3



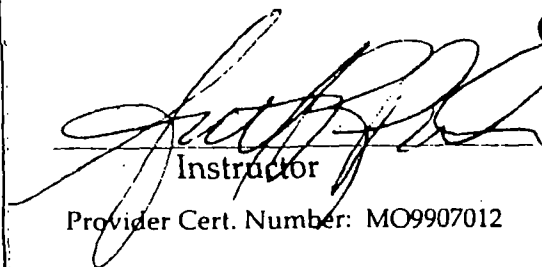
INSPECTOR / LAB CERTIFICATIONS

Certificate of Completion.

This is to certify that
Lance J Kiblinger
has satisfactorily completed
4 hours of refresher training as an
Asbestos Building Inspector

to comply with the training requirements of
TSCA Title III / 40 CFR 763 (AHERA)

Certificate Number (b)(6)


Instructor
Provider Cert. Number: MO9907012

ARGUS PACIFIC
SAFETY • TRAINING • INDUSTRIAL HYGIENE

Apr 30, 2003
Date(s) of Training
Exam Score: N/A
Expiration Date: Apr 29, 2004

Argus Pacific, Inc. • 1900 W. Nickerson, Suite 315 • Seattle, Washington • 98119 • (206) 285.3373 • fax (206) 285.3927

United States Environmental Protection Agency

This is to certify that

Lance J. Kiblinger

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402(a)(1), and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.6 as a Risk Assessor.

In the State of:

WASHINGTON

This certification is valid for three (3) years from the date of issuance and expires 7/18/2004.

(b)(6)

Certification #

Montal Livingston
Approving Official

UNIT MANAGER, SOLID WASTE & TOXICS UNIT

7/18/2001
Issued on

Title

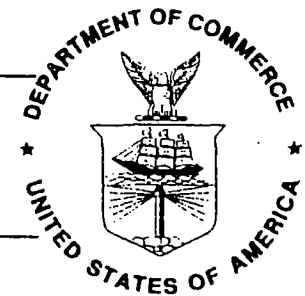


United States Department of Commerce
National Institute of Standards and Technology



ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation



PACIFIC RIM ENVIRONMENTAL, INC.
TUKWILA, WA

*is recognized by the National Voluntary Laboratory Accreditation Program
for satisfactory compliance with criteria set forth in NIST Handbook 150:2001,
all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994.
Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:*

BULK ASBESTOS FIBER ANALYSIS

March 31, 2004

Effective through

A handwritten signature in cursive script, reading "C. D. Faison".

For the National Institute of Standards and Technology
NVLAP Lab Code: 101631-0

United States Environmental Protection Agency

This is to certify that

Pacific Rim Environmental, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402(a)(1), and has received certification to conduct lead-based paint activities pursuant to 40 CFR 746 as a Franchisee.

This certification is valid for three (3) years from the date of issuance and expires 5/16/2004.

(b)(6)

Certification #

5/16/01

Issued on

Montel Livingston

Approving Official

UNIT MANAGER, SOLID WASTE & TOXICS UNIT

Title





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02075 Lead Medicals for Workers Statement



Section 02075 MEDICAL MONITORING

PAS certifies that all workers that will be on the Thea Foss 300 Middle Waterway Abatement Project will have appropriate and current medical monitoring for asbestos and lead.

A handwritten signature in black ink, appearing to read "Paul Hanway".

Paul Hanway

Manager Special Projects

AHERA Building Inspector 1003825 expires 1/15/2004

Project Designer 1004920 expires 4/17/2004



SEATTLE OFFICE

422 South Forest Street • Seattle, WA 98134 • TEL: (206) 467-8733 • FAX: (206) 467-6307

August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.

Signed

A handwritten signature in cursive script, appearing to read "Ray D. Sutton Jr.", written over a horizontal line.

Written Name

RAY D. SUTTON JR




SEATTLE OFFICE

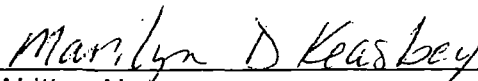
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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.


Signed


Written Name



SEATTLE OFFICE

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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.

Signed

Jim Howdeshell

Written Name

James R Howdeshell



SEATTLE OFFICE

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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.

Ernest Crane
Signed

Ernest CRANE
Written Name



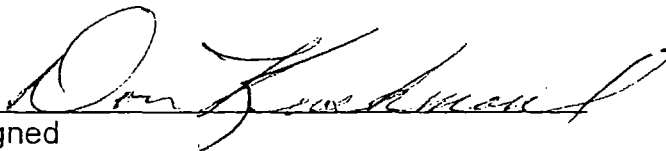
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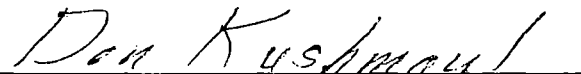
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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.


Signed


Written Name



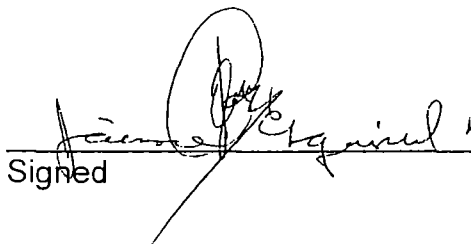
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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.


Signed

JAMIE ESQUIVEL
Written Name



SEATTLE OFFICE


422 South Forest Street • Seattle, WA 98134 • TEL: (206) 467-8733 • FAX: (206) 467-6307

August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.


Signed


Written Name



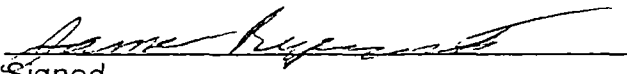
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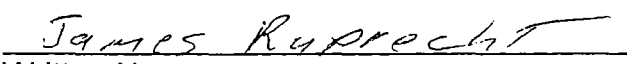
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August 11, 2003

To Whom It May Concern:

As part of the Thea Foss Waterway Remediation Project, I have been offered medical monitoring for lead exposure. I have waived this monitoring until such time that the airborne lead levels exceed the PEL.


Signed


Written Name



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02075 Lead Training for Workers



Section 02075 Lead Awareness Training

PAS certifies that all workers that will be on the Thea Foss 300 Middle Waterway Abatement Project will have appropriate and current lead awareness training.

A handwritten signature in black ink, appearing to read "Paul Hanway".

Paul Hanway

Manager Special Projects

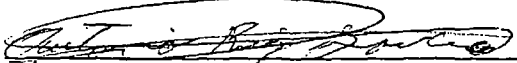
AHERA Building Inspector (b)(6) expires 1/15/2004

Project Designer (b)(6) expires 4/17/2004

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

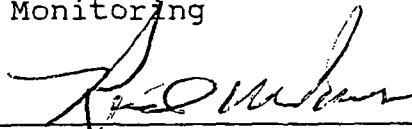
This is to certify that I have received training for Lead Abatement per WAC 296-62-07521 Occupational Standards including Appendices A-D, WAC 296-155-176 Construction Standards, HUD interim guidelines for removing LBP, OSHA 1926.62, OSHA 1910.1025 and understand the requirements for the following topics:

Application	Chelation
Definitions	Med. Removal & Benefits
General Requirements	Training
Monitoring, PEL, Action Level	Signage
Initial Monitoring	Record Keeping
Employee Notification	Health Effects
Engineering Controls	Swab Testing
Administrative & Rotation Controls	TCLP Testing
Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	


Signature:

ANTONIO RUIZ GARCIA
Print Name:

8/7/03
Date:


Witness:

8-7-03
Date:

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

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Administrative & Rotation Controls	TCLP Testing
Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

J. Cassel
Signature:

Jim Cassel
Print Name:

8-7-03
Date:

Richard [Signature]
Witness:

8/7/03
Date:

- ENVIRONMENTAL ABATEMENT SERVICES, INC. -

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

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Administrative & Rotation Controls	TCLP Testing
Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Lauro V. Santiago
Signature:

R. E. McRae
Witness:

Lauro Veloso Santiago
Print Name:

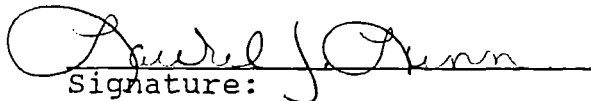
8/7/03
Date:

08-07-03
Date:

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

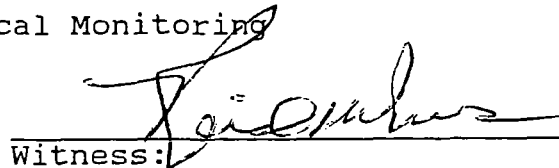
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Administrative & Rotation Controls	TCLP Testing
Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	


Signature:

Laurel J. Lunn
Print Name:

08-07-03
Date:

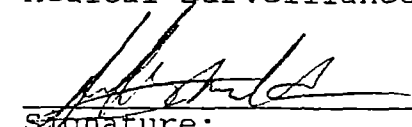

Witness:

08-07-03
Date:

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

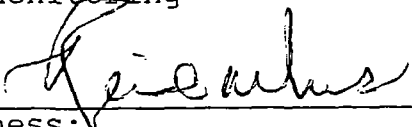
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PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	


Signature:

Juan Ruiz Morales
Print Name:

8/7/03
Date:


Witness:

8/7/03
Date:

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LEAD BASED PAINT REMOVAL

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Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Ernest Crane
Signature:

Ernest CRANE
Print Name:

8-7-03
Date:

Reid M. Huns
Witness:

8/7/03
Date:

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

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Administrative & Rotation Controls	TCLP Testing
Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Travis Wallace
Signature:

Travis Wallace
Print Name:

8-7-03
Date:

Kei Oshida
Witness:

8/7/03
Date:

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

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Signature:

Print Name:

Date:


Witness:

Date:

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LEAD BASED PAINT REMOVAL

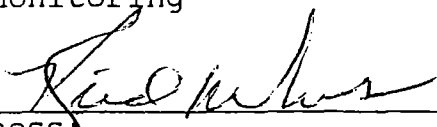
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House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Signature 

Print Name: AMANDA MOLINA

Date: 8-7-03

Witness: 

Date: 8/7/03

CERTIFICATE OF TRAINING
LEAD BASED PAINT REMOVAL

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PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Ray D. Sutton Jr.
Signature:

[Signature]
Witness:

Ray D. Sutton Jr.
Print Name:

8-7-03
Date:

8-7-03
Date:

PERFORMANCE ABATEMENT SERVICES, INC.

CERTIFICATE OF TRAINING LEAD BASED PAINT REMOVAL

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Respiratory Protection	Packaging & Disposal
PPE	Transportation
House Keeping	Generator ID No.
Hygiene Facilities	
Medical Surveillance & Biological Monitoring	

Shakene Brown
Signature:

Shakene Brown
Print Name:

8-7-03
Date:

Richard
Witness:

8-7-03
Date:



Section 02075 Record Keeping



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

August 5, 2003

Manson Construction Company
PO Box 24067
Seattle, WA 98134

Attention: Jayme Morris

RE: Record Keeping
Lead Abatement Work Incidental to Asbestos Abatement Work
300 Middle Waterway Building
Tacoma, WA

Dear Ms. Morris:

This letter has been prepared to certify that Performance Abatement Services, Inc. that exposure measurements, medical surveillance and worker training records for the above referenced project will be kept in accordance with WAC 296-155-176.

Sincerely,
PERFORMANCE ABATEMENT SERVICES, INC.

A handwritten signature in cursive script, appearing to read 'Glenn E. Frye'.

Glenn E. Frye
President

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

Tel: 206.547 0100 Emerg. Pager: 206.344.1878

1.888 NVL.LABS (685.5227)

**CHAIN of CUSTODY
SAMPLE LOG**

BATCH ID

2310420.00

S

Client Performance Abatement ServicesStreet 422 S ForestSeattle, WA 98134Project Manager Gary HansenProject Location THRA FOSS

NVL Batch Number _____

Client Job Number 9050Total Samples 1
 Turn Around Time ☐ 1-Hr ☒ 24-Hrs ☐ 4 Days
☐ 2-Hrs ☐ 2 Days ☐ 5 Days
☐ 4-Hrs ☐ 3 Days ☐ 6 to 10 Days
 Please call for TAT less than 24 Hrs

Email address _____

Phone: (206) 467-8733 Fax: (206) 623-2091

<input type="checkbox"/> Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400)	<input type="checkbox"/> TEM (NIOSH 7402)	<input type="checkbox"/> TEM (AHERA)	<input type="checkbox"/> TEM (EPA Level II)	<input type="checkbox"/> Other _____
<input type="checkbox"/> Asbestos Bulk	<input type="checkbox"/> PLM (EPA/600/R-93/116)	<input type="checkbox"/> PLM (EPA Point Count)	<input type="checkbox"/> PLM (EPA Gravimetry)	<input type="checkbox"/> TEM Bulk	
METALS	Det. Limit	Matrix	RCRA Metals	<input type="checkbox"/> All 8	Other Metals
<input type="checkbox"/> Total Metals	<input type="checkbox"/> ppm (AAS)	<input type="checkbox"/> Air Filter	<input type="checkbox"/> Arsenic (As)	<input checked="" type="checkbox"/> Lead (Pb)	<input type="checkbox"/> All 3
<input checked="" type="checkbox"/> TCLP	<input type="checkbox"/> ppb (GFAA)	<input type="checkbox"/> Drinking water	<input type="checkbox"/> Barium (Ba)	<input type="checkbox"/> Mercury (Hg)	<input type="checkbox"/> Copper (Cu)
		<input type="checkbox"/> Dust/wipe	<input type="checkbox"/> Cadmium (Cd)	<input type="checkbox"/> Selenium (Se)	<input type="checkbox"/> Nickel (Ni)
		<input type="checkbox"/> Soil	<input type="checkbox"/> Chromium (Cr)	<input type="checkbox"/> Silver (Ag)	<input type="checkbox"/> Zinc (Zn)
<input type="checkbox"/> Other Types of Analysis	<input type="checkbox"/> Fiberglass	<input type="checkbox"/> Nuisance Dust	<input type="checkbox"/> Rotometer Calibration	<input type="checkbox"/> Other (Specify) _____	
	<input type="checkbox"/> Silica	<input type="checkbox"/> Respirable Dust	<input type="checkbox"/> Mold/Fungus		

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		<u>1</u>		
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Print Below	Sign Below	Company	Date	Time
Sampled by <u>G. Hansen</u>	<u>[Signature]</u>	<u>THAS</u>	<u>8/6/03</u>	<u>11:30A</u>
Relinquished by <u>G. Hansen</u>	<u>[Signature]</u>	<u>THAS</u>	<u>8/6/03</u>	
Received by <u>[Signature]</u>	<u>[Signature]</u>	<u>NVL</u>	<u>8/6/03</u>	<u>3:00pm</u>
Analyzed by <u>[Signature]</u>	<u>[Signature]</u>	<u>NVL</u>	<u>8/26/03</u>	<u>11:02</u>
Results Called by				
Results Faxed by				<u>1455</u>

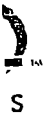
Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103
Tel: 206.547.0100 Emerg. Pager: 206.344.1878
1.888.NVL.LABS (685.5227)

**CHAIN of CUSTODY
SAMPLE LOG**

BATCH ID

2310420.00Client Performance Abatement ServicesStreet 422 S ForestSeattle, WA 98134Project Manager Gary HansenProject Location THEA FOSS

NVL Batch Number _____

Client Job Number 9050Total Samples 1

Turn Around Time ☐ 1-Hr ☒ 24-Hrs ☐ 4 Days
☐ 2-Hrs ☐ 2 Days ☐ 5 Days
☐ 4-Hrs ☐ 3 Days ☐ 6 to 10 Days
Please call for TAT less than 24 Hrs

Email address _____

Phone: (206) 467-8733 Fax: (206) 623-2091

<input type="checkbox"/> Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400)	<input type="checkbox"/> TEM (NIOSH 7402)	<input type="checkbox"/> TEM (AHERA)	<input type="checkbox"/> TEM (EPA Level II)	<input type="checkbox"/> Other _____
<input type="checkbox"/> Asbestos Bulk	<input type="checkbox"/> PLM (EPA/600/R-93/116)	<input type="checkbox"/> PLM (EPA Point Count)	<input type="checkbox"/> PLM (EPA Gravimetry)	<input type="checkbox"/> TEM Bulk	
METALS <input type="checkbox"/> Total Metals <input checked="" type="checkbox"/> TCLP	Det. Limit <input type="checkbox"/> ppm (AAS) <input type="checkbox"/> ppb (GFAA)	Matrix <input type="checkbox"/> Air Filter <input type="checkbox"/> Drinking water <input type="checkbox"/> Dust/wipe <input type="checkbox"/> Soil	<input type="checkbox"/> Paint Chips <input type="checkbox"/> Paint Chips (Area) <input type="checkbox"/> Waste Water <input type="checkbox"/> Other _____	RCRA Metals <input type="checkbox"/> Arsenic (As) <input type="checkbox"/> Barium (Ba) <input type="checkbox"/> Cadmium (Cd) <input type="checkbox"/> Chromium (Cr)	<input type="checkbox"/> All 8 <input checked="" type="checkbox"/> Lead (Pb) <input type="checkbox"/> Mercury (Hg) <input type="checkbox"/> Selenium (Se) <input type="checkbox"/> Silver (Ag)
<input type="checkbox"/> Other Types of Analysis	<input type="checkbox"/> Fiberglass <input type="checkbox"/> Silica	<input type="checkbox"/> Nuisance Dust <input type="checkbox"/> Respirable Dust	<input type="checkbox"/> Rotometer Calibration <input type="checkbox"/> Mold/Fungus	<input type="checkbox"/> Other (Specify) _____	Other Metals <input type="checkbox"/> All 3 <input type="checkbox"/> Copper (Cu) <input type="checkbox"/> Nickel (Ni) <input type="checkbox"/> Zinc (Zn)

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		/		
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	G. HANSEN		PAS	8/6/03	11:30A
Relinquished by	G. HANSEN		PAS	8/6/03	
Received by			NVL	8/6/03	3:00pm
Analyzed by			NVL	8/7/03	11:02
Results Called by					
Results Faxed by					1455

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

NVL Laboratories, Inc.

4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH
#101861

**Lead (Pb) TCLP**

Client: Performance Abatement Services
Address: 422 S Forest
Seattle, WA 98134

Attention: Mr. Gary Hansen
Project Location: Thea Foss

Batch #: 2310420.00
Matrix: TCLP
Method: EPA 1311/7000B
Client Project #: 9050
Samples Received: 1
Total Samples Analyzed: 1

Lab ID	Client Sample #	RL mg/ L	Results in mg/L	Results in ppm
23066186	1	0.5	4.8	4.9

Sampled by: Client

Analyzed by: Holly Tuttle

Date: 08/07/2003

DRAFT

mg/ L = Milligrams per liter

ppm = parts per million

RL = Reporting Limit

'<' = Below the reporting Limit

Note: Method QC results are acceptable unless stated otherwise.

Bench Run No: 23-0806-5



Section 02075 Record Keeping



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

August 5, 2003

Manson Construction Company
PO Box 24067
Seattle, WA 98134

Attention: Jayme Morris

RE: Record Keeping
Lead Abatement Work Incidental to Asbestos Abatement Work
300 Middle Waterway Building
Tacoma, WA

Dear Ms. Morris:

This letter has been prepared to certify that Performance Abatement Services, Inc. that exposure measurements, medical surveillance and worker training records for the above referenced project will be kept in accordance with WAC 296-155-176.

Sincerely,
PERFORMANCE ABATEMENT SERVICES, INC.

A handwritten signature in black ink, appearing to read 'Glenn E. Frye', written in a cursive style.

Glenn E. Frye
President



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

**Section 02080 Asbestos Abatement Worker Certifications, Fit
Tests & Medicals for Workers**



**THE FOLLOWING CERTIFICATIONS, MEDICAL AND FIT TEST
MAY NOT REFLECT THE ACTUAL WORKERS ON THE PROJECT**

CERTIFIED AS PROVIDED BY LAW AS

ASBESTOS WORKER

CERTIFICATE NUMBER: (b)(6)

EXPIRATION DATE 09/15/2003

LUNN, LAUREL J

(b)(6)

AUBURN, WA 98092

Signature

Laurel J. Lunn

Issued by DEPARTMENT OF LABOR AND INDUSTRIES

OCCUHEALTH
726 BROADWAY #201
SEATTLE, WA 98122
(206)682-2234

RECEIVED AUG 18 2003

ASBESTOS SURVEILLANCE REPORT

NAME: LAUREL LUNN

BASELINE: _____

COMPANY: PERFORMANCE

ANNUAL: XX 3 yrs.

DATE OF EXAM: 8-15-03

EXIT: _____

Based on the exam performed at OCCUHEALTH, including review of the asbestos questionnaire, pulmonary function screening and chest x-ray: 2000.

- ☒ No medical condition was detected which would place this individual at risk of health impairments from exposure to asbestos.
- ☒ No limitations are recommended on the planned duties including use of protective equipment including respirator.
- ☒ The employee was informed by me of the results of testing and of any medical conditions that might be due to asbestos exposure.
- ☒ This employee was made aware that this was a limited evaluation regarding asbestos exposure and does not replace the need for more complete regular physical examinations by a personal physician and the need to follow sound health practices.

Further recommendations that apply:

N/A. This employee was counseled to stop smoking, even when away from asbestos exposure.

Other: _____

Kevin M. O'Keeffe, M.D.

Cynthia L. Rubbert PA-C
Cynthia L. Rubbert, PA-C

PERFORMANCE ABATEMENT SERVICES, INC.

RESPIRATOR FIT TEST

Employee Name

Laurel J. Lunn

Social Security No.

(b)(6)

Date

01-03-03

Person administering fit test

MARTY MORGAN

Social Security No.

(b)(6)

Respirator Information

Manufacturer

NORTH

Model

7700

Type

1/2 FACE

Size

S

Approval No.

Testing Agent

Irritant Smoke

V

Isoamyl Acetate
(banana oil)

Saccharin Solution

Employee signature

Laurel J. Lunn

Date 01-03-03

IH employee signature

M Morgan

Date 1-03-03

CERTIFIED AS PROVIDED BY LAW AS

ASBESTOS SUPERVISOR

CERTIFICATE NUMBER: (b)(6)

EXPIRATION DATE: 06/03/2004

KEASBEY, MARILYN D

(b)(6)

TACOMA, WA 98445

Signature



Issued by DEPARTMENT OF LABOR AND INDUSTRIES

OCCUHEALTH
726 BROADWAY #201
SEATTLE, WA 98122
(206)682-2234

RECEIVED MAY 13 2003

ASBESTOS SURVEILLANCE REPORT

NAME: MARILYN KEASBY

BASELINE: _____

COMPANY: PERFORMANCE

ANNUAL: XX 4 yrs.

DATE OF EXAM: 5-12-03

EXIT: _____

Based on the exam performed at OCCUHEALTH, including review of the asbestos questionnaire, pulmonary function screening and chest x-ray: 1999

☒ No medical condition was detected which would place this individual at risk of health impairments from exposure to asbestos.

☒ No limitations are recommended on the planned duties including use of protective equipment including respirator.

☒ The employee was informed by me of the results of testing and of any medical conditions that might be due to asbestos exposure.

☒ This employee was made aware that this was a limited evaluation regarding asbestos exposure and does not replace the need for more complete regular physical examinations by a personal physician and the need to follow sound health practices.

Further recommendations that apply:

N/A This employee was counseled to stop smoking, even when away from asbestos exposure.

Other: _____

Kevin M. O'Keeffe, M.D.

Cynthia L. Rubbert
Cynthia L. Rubbert, PA-C



Marilyn Keasby

has completed a C.P.R. course meeting the requirements of W.A.C. 296.24.061 and meeting national C.P.R. standards.

- ☒ Adult
☐ Child
☐ Infant

Kirsten Clemens

Instructor

2/22/03

Date of Course



Marilyn Keasby

has completed a basic first aid course meeting the requirements of W.A.C. 51.36.030.

Kirsten Clemens

Instructor

2/22/03

This card expires 2 years after date of issue.

Date of Course

QUALITATIVE FIT TEST RECORD

Name Marilyn Keasbey Issue Date: 6/28/2002
Soc. Sec. # (b)(6) Exp. Date: 6/28/2003
Test Operator: Gary Hansen
Respirator Brand: North NIOSH App. # TC-23C-49
Respirator Model: 7700 Size: M/L

	Trial 1	Trial 2	Trial 3
Normal Breathing (NB) Standing in place, no talking	<u>PASS</u>	<u> </u>	<u> </u>
Deep Breathing (DB) Standing in Place, Breath at Normal Rate	<u>PASS</u>	<u> </u>	<u> </u>
Move Head Side to Side and Up and Down (SS/UD) Standing in Place, Hold at Extreme Positions for 5 seconds.	<u>PASS</u>	<u> </u>	<u> </u>
Reading/Grimace (R/G) Read "Rainbow Passage"/Contort Facial Muscles by Grimacing, Etc.	<u>PASS</u>	<u> </u>	<u> </u>
Bend Over-Touch Toes/ Jogging in Place (B/J) Bend @ Waist, Touch Toes, Return to Upright/Job in Place	<u>PASS</u>	<u> </u>	<u> </u>
Normal Breathing (N/B) Standing in Place, No Talking	<u>PASS</u>	<u> </u>	<u> </u>
Fit Factor (FF)	<u>PASS</u>	<u> </u>	<u> </u>

FINAL FIT PASS

Lowest of Three Tests

All Tests are Performed for 90 Seconds

A Minimum Fit factor of 1000 Must Be Obtained for Satisfactory Fit

CERTIFIED AS PROVIDED BY LAW AS

ASBESTOS WORKER

CERTIFICATE NUMBER: (b)(6)

EXPIRATION DATE: 05/11/2004

LITTLE, KENDRICK L

(b)(6)

TUKWILA, WA 98188

Signature

Kendrick Little

Issued by DEPARTMENT OF LABOR AND INDUSTRIES

RECEIVED MAY 23 2003

NAME: KENDRICK LITTLE

COMPANY: PERFORMANCE

ANNUAL: xxx / yr.

DATE OF EXAM: 05-22-03

Based on the exam performed at OCCUHEALTH, including review of the asbestos questionnaire, pulmonary function screening and chest x-ray: 3162

- Further recommendations that apply:

- ✓ This employee was counseled to stop smoking, even when away from asbestos exposure.

Other: _____

Cynthia Rubbert PA
Cynthia L. Rubbert, PA-C



QUALITATIVE FIT TEST RECORD

Name Kendrick Little Issue Date: 3/27/2003
Soc. Sec. # (b)(6) Exp. Date: 3/27/2004
Test Operator: _____
Respirator Brand: North NIOSH App. # TC-23C-49
Respirator Model: 7700 Size: M/L

Normal Breathing (NB)

Standing in place, no talking

pass or fail

Trial 1

PASS

Deep Breathing (DB)

Standing in Place, Breath at
Normal Rate

pass or fail

PASS

**Move Head Side to Side
and Up and Down (SS/UD)**

Standing in Place, Hold at Extreme
Positions for 5 seconds.

pass or fail

pass or fail

PASS

PASS

Reading/Grimace (R/G)

Read "Rainbow Passage"/Contort
Facial Muscles by Grimacing, Etc.

pass or fail

PASS

**Bend Over-Touch Toes/
Jogging in Place (B/J)**

Bend @ Waist, Touch Toes, Return
to Upright/Job in Place

pass or fail

PASS

Normal Breathing (N/B)

Standing in Place, No Talking

pass or fail

PASS

Fit Factor (FF)

pass or fail

PASS

FINAL FIT

pass or fail

PASS

Lowest of Three Tests

All Tests are Performed for 90 Seconds

A Minimum Fit factor of 1000 Must Be Obtained for Satisfactory Fit

CERTIFIED AS PROVIDED BY LAW

ASBESTOS SUPERVISOR

CERTIFICATE NUMBER (b)(6)

EXPIRATION DATE 02/26/2004

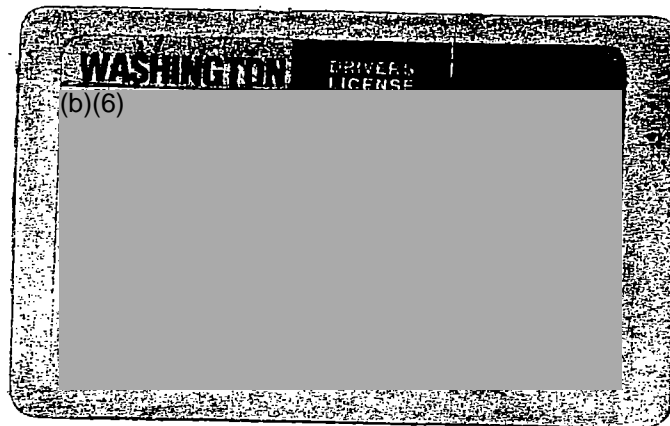
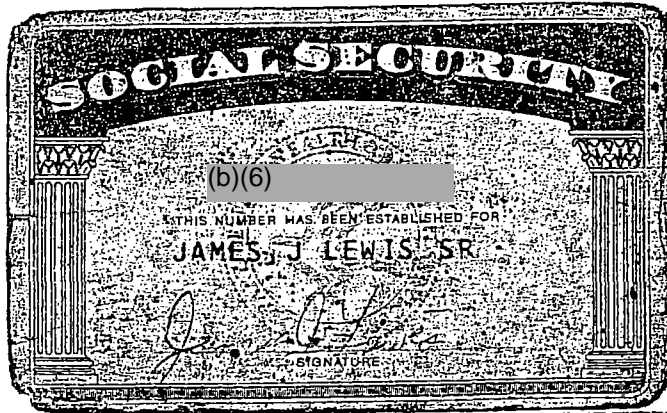
LEWIS, JAMES J

(b)(6)

TACOMA, WA 98444

Signature

Issued by DEPARTMENT OF LABOR AND INDUSTRIES



OSHA 000397602

U.S. Department of Labor
Occupational Safety and Health Administration

Jim Lewis
has successfully completed a 10-hour Occupational Safety and Health
Training Course in
Construction Safety & Health

(Trainer) Susan Kimball (Date) 9/12/02

QUANTITATIVE FIT TEST	
Employee name:	James Lewis
Employer:	EWR
Date:	9/11/02
Expires:	9/11/03
Respirator:	North Full Face, Model # 857001
Size:	L
Fit fact/leak rate:	1541
Instructor:	Kim Brooks

STOP Contractor Safety Training
Orientation Program

Name: James J. Lewis
SSN: (b)(6)
Approved By: [Signature]
Expiration Date: 8/21/2003
Inst. No. (b)(6)
Coaching Required ☐ 74361

EWR Respirator User Card

Name Jim Lewis Training Date: 8-20-02

Date of Fit Test: 8-20-02

Respirator Size & Type: NORTH 1/2 FACE - Large

Medical Reassessment Date: 7-12-03

Holders of this card have received respirator training, medical clearance, and fit testing



**MEDIC
First Aid**
training programs

**Successful
Completion
Card**

- ☒ **Basic** (CPR inclusive)
☐ **Care Initiator** (CPR inclusive)

This Successful Completion Card
is not valid if more than one box
is checked.

Name Jim Lewis
Issued 5-13-02 Expires 5-13-04



Successful Completion Card

- ☒ **Basic** (CPR inclusive)
☐ **Care Initiator** (CPR inclusive)

This Successful Completion Card
is not valid if more than one box
is checked.

Name Jim LEWIS

Issued 5-13-02 Expires 5-13-04

9/11/2002

FitTest Results**Environmental Waste Resources****Personnel ID** (b)(6)**First Name** James**Middle Initial****Last Name** Lewis**Gender** Male**Department****Job Code****Test Date** 9/11/2002**Protocol Name** OSHA**Test Time** 12:47:07 PM**CartType** Medium**Min FitFactor** 500**Mask Size** Large**Work Rate** Normal**Mask Number** 857001**Mask Model** 857001**Mask Manufactu** North**Mask Type** Full Face

Step Num	Step Description	Fit Factor	Leak Rate
1	Breathing	0	0
2	Face Forward	603	112
3	Deep Breathing	0	0
4	Face Forward	2,164	31
5	Side-to-Side	0	0
6	Face Left	1,641	41
7	Face Right	3,561	19
8	Move Head Up-Down	0	0
9	Face-Up	0	2
10	Face Down	8,413	8
11	Talking	0	0
12	Face Forward	740	91
13	Grimace	0	0
14	Bend Over	0	0
15	Face Forward	1,645	41
16	Redon w/ Normal Breathing	0	0
17	Face Forward	1,335	50
Test Results PASS		Equivalent Fit Factor 1,541	Average Leak Rate 44

Operator : _____

Subject : _____

OCCUHEALTH
726 BROADWAY #201
SEATTLE, WA 98122
(206)682-2234

ASBESTOS SURVEILLANCE REPORT

NAME: Don Kushmaul

BASELINE: _____

COMPANY: _____

ANNUAL: 1/16 yr

DATE OF EXAM: 2/10/03

EXIT: _____

Based on the exam performed at OCCUHEALTH, including review of the asbestos questionnaire, pulmonary function screening and chest x-ray: 2/2003

- ☒ No medical condition was detected which would place this individual at risk of health impairments from exposure to asbestos.
- ☒ No limitations are recommended on the planned duties including use of protective equipment including respirator.
- ☒ The employee was informed by me of the results of testing and of any medical conditions that might be due to asbestos exposure.
- ☒ This employee was made aware that this was a limited evaluation regarding asbestos exposure and does not replace the need for more complete regular physical examinations by a personal physician and the need to follow sound health practices.

Further recommendations that apply:

- ☒ This employee was counseled to stop smoking, even when away from asbestos exposure.
- Other: _____

Kevin M. O'Keeffe, M.D.

Cynthia L. Rubbert PA-C
Cynthia L. Rubbert, PA-C

CERTIFIED AS PROVIDED BY LAW AS

ASBESTOS SUPERVISOR

CERTIFICATE NUMBER (b)(6)

EXPIRATION DATE: 07/11/2004

KUSHMAUL, DONALD A

(b)(6)

EVERETT, WA 98208

Signature

Issued by

Don Kushmaul
DEPARTMENT OF LABOR AND INDUSTRIES

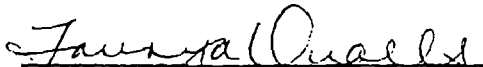
Cole & Associates

Training & Consulting, Inc.

certifies that

Donald A. Kushamul

has hereby successfully completed the HAZWOPER (40 Hour)
Refresher Training Course

 (b)(6)
TRAINING ADMINISTRATOR CERTIFICATION NUMBER
AWARDED: July 16, 2003 EXPIRES: 7/16/2004

Certificate of Completion

presented by:

Cole and Associates, Training and Consulting, Inc.

this is to certify that

Donald A. Kushamul

4302 Crescent Avenue Everett, WA 98203

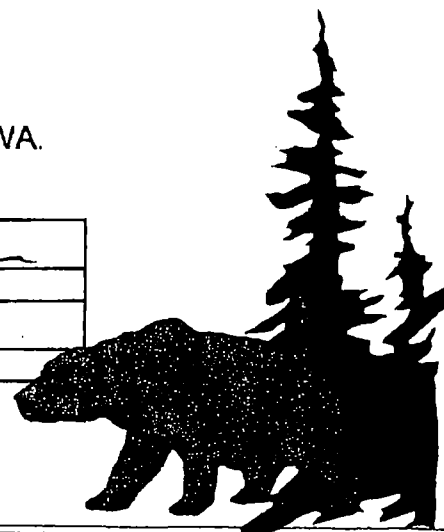
has successfully completed the
**HAZWOPER (40 Hour) Refresher
Training Course**

Starting on Wednesday, July 16, 2003, and
ending on Wednesday, July 16, 2003, in Renton, WA.
Exam administered on: July 16, 2003



<i>James G. Gault</i>	<i>Sam B.</i>
Training Administrator	Training Director
(b)(6)	7/16/2004
Certification Number	Date of Expiration

Cole & Associates, Training & Consulting, Inc., 451 SW 10th Street, Suite 100
Renton, WA 98055 (425) 793-5505 Fax (425) 793-5552
1-877-455-BEAR & 1-888-414-8008
www.ctcbear.com



CERTIFIED AS PROVIDED BY LAW AS

ASBESTOS SUPERVISOR

CERTIFICATE NUMBER: (b)(6)

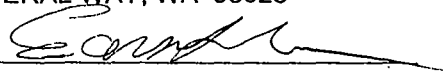
EXPIRATION DATE: 05/19/2004

CRANE, EARNEST

(b)(6)

FEDERAL WAY, WA 98023

Signature


Issued by DEPARTMENT OF LABOR AND INDUSTRIES

G. Han.

OCCUHEALTH
726 BROADWAY #201
SEATTLE, WA 98122
(206)682-2234

RECEIVED DEC 23 2002

ASBESTOS SURVEILLANCE REPORT

NAME: EARNEST CRANE

BASELINE: _____

COMPANY: PERFORMANCE

ANNUAL: XX

DATE OF EXAM: 12-20-02

EXIT: _____

Based on the exam performed at OCCUHEALTH, including review of the asbestos questionnaire, pulmonary function screening and chest x-ray: 12/02

☒ No medical condition was detected which would place this individual at risk of health impairments from exposure to asbestos.

☒ No limitations are recommended on the planned duties including use of protective equipment including respirator.

☒ The employee was informed by me of the results of testing and of any medical conditions that might be due to asbestos exposure.

☒ This employee was made aware that this was a limited evaluation regarding asbestos exposure and does not replace the need for more complete regular physical examinations by a personal physician and the need to follow sound health practices.

Further recommendations that apply:

N/A. This employee was counseled to stop smoking, even when away from asbestos exposure.

Other: _____

Kevin M. O'Keeffe, M.D.

Cynthia L. Rubbert PA-C
Cynthia L. Rubbert, PA-C



Ernest Crane

has completed a basic first aid course meeting
the requirements of W.A.C. 51.36.030.

Kirsten Clemens 2/22/03
Instructor This card expires 2 years after date of issue. Date of Course



Ernest Crane

has completed a C.P.R. course meeting the
requirements of W.A.C. 296.24.061 and
meeting national C.P.R. standards.

☒ Adult
☐ Child
☐ Infant

Kirsten Clemens 2/22/03
Instructor Date of Course



QUALITATIVE FIT TEST RECORD

Name: Earnest Crane

Issue Date: 11/2/2002

Soc. Sec. #: (b)(6)

Exp. Date: 11/2/2003

Test Operator: Gary Hansen

Respirator Brand: NORTH

NIOSH App. #: TC23C49

Respirator Model: 7700

Size: M

	<u>Trial 1</u>	<u>Trial 2</u>	<u>Trial 3</u>
Normal Breathing (NB) Standing in place, no talking	<u>PASS</u>	<u></u>	<u></u>
Deep Breathing (DB) Standing in Place, Breath at Normal Rate	<u>PASS</u>	<u></u>	<u></u>
Move Head Side to Side and Up and Down (SS/UD) Standing in Place, Hold at Extreme Positions for 5 seconds.	<u>PASS</u>	<u></u>	<u></u>
Reading/Grimace (R/G) Read "Rainbow Passage"/Contort Facial Muscles by Grimacing, Etc.	<u>PASS</u>	<u></u>	<u></u>
Bend Over-Touch Toes/ Jogging in Place (B/J) Bend @ Waist, Touch Toes, Return to Upright/Job in Place	<u>PASS</u>	<u></u>	<u></u>
Normal Breathing (N/B) Standing in Place, No Talking	<u>PASS</u>	<u></u>	<u></u>
Fit Factor (FF)	<u>PASS</u>	<u></u>	<u></u>
FINAL FIT Tests are Pass/Fail	<u>PASS</u>		



QUANTITATIVE FIT TEST RECORD

Name: Earnest Crane

Issue Date: 11/2/2002

Soc. Sec. # : (b)(6)

Exp. Date: 11/2/2003

Test Operator: Gary Hansen

Respirator Brand: Racal

NIOSH App. #: TC84A-0591

Respirator Model: PAPR

Size: M/L

	Trial 1	Trial 2	Trial 3
Normal Breathing (NB) Standing in place, no talking	<u>23,000</u>	<u>28,000</u>	<u>26,000</u>
Deep Breathing (DB) Standing in Place, Breath at Normal Rate	<u>31,500</u>	<u>32,000</u>	<u>30,000</u>
Move Head Side to Side and Up and Down (SS/UD) Standing in Place, Hold at Extreme Positions for 5 seconds.	<u>21,000</u>	<u>25,600</u>	<u>24,700</u>
Reading/Grimace (R/G) Read "Rainbow Passage"/Contort Facial Muscles by Grimacing, Etc.	<u>18,700</u>	<u>22,000</u>	<u>20,000</u>
Bend Over-Touch Toes/ Jogging in Place (B/J) Bend @ Waist, Touch Toes, Return to Upright/Job in Place	<u>26,900</u>	<u>28,500</u>	<u>30,000</u>
Normal Breathing (N/B) Standing in Place, No Talking	<u>23,600</u>	<u>22,500</u>	<u>23,000</u>
Fit Factor (FF)	<u>28,000</u>	<u>26,500</u>	<u>25,700</u>
FINAL FIT <u>25,700</u>			

Lowest of Three Tests

All Tests are Performed for 90 Seconds

A Minimum Fit factor of 1000 Must Be Obtained for Satisfactory Fit





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 Notifications and Ammendments

Agency Case No.

200302359

Agency Use Only

PUGET SOUND CLEAN AIR
AGENCY110 Union Street, Suite 500
Seattle, WA 98101-2038
www.pscleanair.org

NOTICE OF INTENT

Date Received

PSAIR JUN 27 2003

Agency Use Only

A. Project Type: 1. ☒ Friable Asbestos Removal 2. ☒ Friable Asbestos Removal & Demolition 3. ☐ Demolition Only

B. Property Owner: SIMPSON TIMBER COMPANY		Phone: 253 572-2150	
Mailing Address: 801 PORTLAND AVE	City: TACOMA	State: WA	Zip: 98421

C. Asbestos Contractor: PERFORMANCE ASBESTOS SERVICES				Owner/CEO: MANGER Phil Hanway	
Mailing Address: 422 S. FENEST ST.		Phone: 206-467-8733		Contractor Job No.: 9050	
City: SEATTLE	State: WA	Zip: 98134	Fax: 206-467-6307		

D. Site Address: 300 MIDDLE WATER WAY		City: TACOMA	Zip: 98421
Site Manager: Mickey PANDOS		Local Phone: 253-572-2150	

E. <input checked="" type="checkbox"/> Asbestos Survey or <input type="checkbox"/> Maf'l Presumed	No. of Structures: 1	Date of Asbestos Survey: 3-8-99	Was Friable Asbestos Identified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
AHERA Building Inspector: CRAIG THOMAS	Certification #: 7-10-99	Was Nonfriable Asbestos Identified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Attach a copy of the survey unless friable asbestos is identified.			

An AHERA Survey is required before all demolition projects

F. Demolition Information:	Start Date: 7/21/03	No of Structures: 1	1. <input type="checkbox"/> Training Fire (List Fire Dept)
Demolition Contractor: RH RHINE INC	Will nonfriable asbestos be left in place during demo? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2. <input type="checkbox"/> Ordered Demolition (attach copy of Order)
Insert demolition contractor's mailing address on back		If yes, list type and qty.	

G. Friable Asbestos Project Information:	Start Date: 7-7-03	Completion Date: 7-21-03	Work Days: M T W Th F Sa Su
Total Qty. to be Removed: 1375 Linear Ft. 6800 Square Ft.	Hours: 7am - 3:30pm		Will all friable asbestos materials be removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
List type(s) of material to be removed: SLIP SHEET-FLOORING, ROOF INSULATION CEILING TILE			

H. Asbestos/Demolition Project Categories:	Notification Period	Project Fee	Demolition Surcharge
1. Single-Family Residence:			
A. <input type="checkbox"/> Asbestos Removal Project Only	A Prior Notice	A. \$25	
B. <input type="checkbox"/> Demolition Project (with or without asbestos removal project)	B 10 Days*	B \$50	

Note: If the single family residence is owned by one family who has been or will be using the residence as their domicile, the above boxes 1A or 1B may be checked. A single family residence does not include rental property, multi-family units, or any mixed-use building.

2. <input type="checkbox"/> All Other Demolitions With No Asbestos Removal Project	10 Days	\$200
Friable Asbestos Projects (other than Single Family Residence):		
3. <input type="checkbox"/> ≥ 10 - 259 linear feet or ≥ 48 - 159 square feet of asbestos	Prior Notice 10 Days	\$150 \$50
4. <input type="checkbox"/> 260 - 999 linear feet or 160 - 4,999 square feet of asbestos	10 Days	\$300 \$100
5. <input type="checkbox"/> 1,000 - 9,999 linear feet or 5,000 - 49,999 square feet of asbestos	10 Days	\$750 \$250
6. <input type="checkbox"/> > 10,000 linear feet or > 50,000 square feet of asbestos	10 Days	\$2,000 \$1,000
7. <input type="checkbox"/> Emergency Asbestos Project or <input type="checkbox"/> Emergency Demolition Project	Prior Notice	Twice Project Fee

(Single-Family Residences are exempt from emergency fee; however, property owners must provide a written emergency request)

I. I certify that the information contained in this notification & supplemental data is, to the best of my knowledge, accurate & complete.

Signature

Phil Hanway

Representing

RHS INC.

Date

6-27-03

Agency Use Only

Reviewed By

7/1/03

The Puget Sound Clean Air Agency requires advance notification before any person commences a friable asbestos project involving materials equal to or greater in size than 10 linear feet or 48 square feet and for all demolition projects (regardless of asbestos content) involving structures with a projected roof area greater than 120 square feet (Regulation II, Article 4). All asbestos removal and demolition notifications must be submitted to the Agency on current Agency forms. Asbestos removal and demolition projects involving materials and structures below the notification threshold are still subject to all other requirements of Regulation III, Article 4.

After receiving a complete notification with the appropriate project fee, the Agency will review the form and return a copy to the asbestos and demolition contractor by mail. The returned copy will be your validated notification.

J. Demolition Contractor: R.W. RHINE		Owner/CEO: MR. RHINE	
Mailing Address: 1124 - 112TH ST. ETS		Phone: 253-537-5852	Contractor's Job # 17450
City: FALCONIA	State: WA Zip: 98445	Fax: 253-531-9548	

GUIDELINES FOR SUBMITTING AN ASBESTOS/DEMOLITION NOTIFICATION

Step 1. Check the appropriate project type in **Box A**. Friable asbestos includes popcorn ceiling material, sheet vinyl flooring, cement asbestos board siding, and duct insulation. Nonfriable asbestos is normally found in vinyl floor tiles, window putty and most roofing materials.

Step 2. Enter property owner information in **Box B**.

Step 3. Enter the asbestos contractor or property owner information, if the property owner is conducting a single-family residential project, in **Box C**. Print clearly this is your return mailing label.

Step 4. Enter the site address for all notifications in **Box D**. For multi-structure projects, attach supplemental sheet with a site map (include an address for each site) and a list of the type and amount of friable asbestos to be removed from each structure.

Step 5. Check either asbestos survey or material presumed in **Box E**. All demolitions require that an Asbestos Hazard Emergency Response Act (AHERA) asbestos survey be conducted by a certified AHERA building Inspector. Attach a copy of the survey to the notification of a demolition project when only nonfriable asbestos or no asbestos is identified on the survey.

Step 6. Enter the project information in **Box F**, and check the training fire or ordered demolition box if appropriate (a copy of the official order must be attached). All asbestos must be removed prior to conducting a training fire. Additional training fire requirements are contained in Regulation I, Section 8.08. If any nonfriable asbestos materials will be left in place during demolition, check yes and list the type and quantity of material.

Step 7. Enter asbestos project information in **Box G**. List types of friable asbestos material to be removed, surfacing material such as popcorn ceilings or plaster, sheet vinyl flooring, duct and pipe insulation, cement asbestos board siding or pipe, etc.


Step 8. For Single-Family Residential projects; check **BOX H1A** for renovation projects, **BOX H1B** for demolition projects with or without asbestos removal. Asbestos removal may be conducted after a complete notification is received, but demolition activities can only begin on the 10th day after the notification is received. Note: If the single family residence is owned by one family who has been or will be using the residence as their domicile, boxes 1A or 1B may be checked. A single family residence does not include rental property, multi-family units, or any mixed-use building.

For Commercial asbestos projects (or projects that do not qualify as Single Family Residential); check the project category H2 - 6 that matches the amount of friable asbestos that will be removed. If a demolition is involved, include the appropriate surcharge (additional fee) in your payment. To file for an emergency asbestos or demolition project, check the appropriate box 1 - 6 and the applicable emergency box in H7. All emergency requests must be accompanied by a letter from the property owner demonstrating the need to conduct the project immediately in accordance with the requirements in Regulation III, Section 4.03 (c).

Step 9. Please certify the accuracy and completeness of the information provided by signing the notification in **Box I**.

Mandatory amendments to the notification are required for changes that increase the project category, change the types of asbestos materials to be removed and changes to start date, completion date and work schedule for asbestos projects. No fee is required for work schedule changes if the contractor is participating in the Agency work schedule fee program. A \$25.00 processing fee is required for all amendments.

Puget Sound Clean Air Agency asbestos regulations and forms can downloaded from the Agency web page at www.pscleanair.org. For technical assistance contact (206) 689-4058 and for administrative inquiries contact (206) 689-4090.

Agency Use Only	 PUGET SOUND CLEAN AIR AGENCY 110 UNION STREET, SUITE 500 SEATTLE, WA 98101-2038 www.pscleanair.org	Agency Use Only
Case No.:		
Amendment No.:		Date Received

NOTIFICATION A M E N D M E N T

☐ ASBESTOS PROJECT

☐ DEMOLITION PROJECT

<small>PLEASE PRINT CLEARLY; THIS WILL BE YOUR RETURN MAILING LABEL</small>			Owner/CEO:
Contractor: <u>PERFORMANCE ABATEMENT</u>			
Mailing Address: <u>422 S. FOREST</u>			Phone: <u>(206) 467-8733</u>
City: <u>SEATTLE</u>	State: <u>WA</u>	Zip: <u>98134</u>	Fax: <u>(206) 467-6307</u>

ALL AMENDMENTS REQUIRE A \$25 FEE, EXCEPT WORK SCHEDULE CHANGES FOR CONTRACTORS PARTICIPATING IN THE WORK SCHEDULE FAX PROGRAM. THE FEE MUST BE ATTACHED TO EACH AMENDMENT, UNLESS THE CONTRACTOR IS PARTICIPATING IN THE PRE-APPROVED BILLING PROGRAM. ANY AMENDMENT THAT CHANGES THE PROJECT TYPE OR PROJECT CATEGORY IS SUBJECT TO THE NEW NOTIFICATION PERIOD AND MUST BE ACCOMPANIED BY THE APPROPRIATE PROJECT CATEGORY FEE.

PLEASE ENTER CURRENT NOTIFICATION INFORMATION BELOW:

AGENCY CASE #: 200302359 PROJECT CATEGORY 5 CONTRACTOR JOB # 9050

JOB SITE ADDRESS: 300 MIDDLE WATERWAY, TACOMA, WA 98421

PLEASE ENTER AMENDMENT CHANGES BELOW:

☐ CHANGE IN PROJECT TYPE: _____

☒ NEW ASBESTOS PROJECT START DATE: _____ NEW COMPLETION DATE: 10-31-03

☐ NEW WORK SCHEDULE DAYS: M T W TH F SA SU; WORK SHIFT HOURS: _____

☐ CHANGE IN JOB SIZE CATEGORY: _____

ADDITIONAL QUANTITY TO BE REMOVED: _____ SQUARE FT _____ LINEAR FT
 (NEW FOOTAGE : _____ SQUARE FT _____ LINEAR FT)

☐ NEW TYPE OF FRIABLE ASBESTOS MATERIAL TO BE REMOVED (LIST TYPE AND QUANTITY): _____

☐ CHANGE IN ASBESTOS OR DEMOLITION CONTRACTOR: _____

☐ ADDITIONAL INFORMATION (ATTACH ADDITIONAL SHEET IF NECESSARY): _____

I DO HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS APPLICATION AND SUPPLEMENTAL DATA DESCRIBED HEREIN IS, TO THE BEST OF MY KNOWLEDGE, ACCURATE AND COMPLETE.

[Signature] 8-11-03
 SIGNATURE DATE

CONTRACTOR: PERFORMANCE ABATEMENT

TELEPHONE: (206) 467-8733 FAX: (206) 467-6307

PUGET SOUND CLEAN AIR AGENCY Form No 66-173 (Revised 9/02) TS

AGENCY USE ONLY
REVIEWED BY _____



NOTICE OF ASBESTOS ABATEMENT PROJECT

THIS NOTICE MUST BE RECEIVED NO LATER THAN 10 CALENDAR DAYS PRIOR TO THE START DATE
COMPLETE ALL APPLICABLE BOXES - INCOMPLETE OR ILLEGIBLE NOTICES WILL NOT BE ACCEPTED
MAIL OR FAX TO THE REGIONAL OFFICE - CIRCLE CHANGES ON AMENDED NOTICES

Notice date: 6 / 27 / 03	Initial <input checked="" type="checkbox"/> Amended <input type="checkbox"/>	Site Work Hours	Su	Mo	Tu	We	Th	Fr	Sa
Start date: 7 / 7 / 03	On-Hold <input checked="" type="checkbox"/> Off Hold <input type="checkbox"/>	6 am to 4:30 pm		X	X	X	X	X	
Completion: 7 / 21 / 03	Emergency <input type="checkbox"/>		Project Dates and Work Hours must be Exact						

CONTRACTOR		PROPERTY OWNER	
Company Name Performance Abatement Services, Inc	Name Simpson Timber Company		
Contractor Certification Number 1016	Owner's Agent Rob Riller		
Signature <i>[Signature]</i>	Company Manson Construction Co		
Printed Name Paul Hanway	Address 5209 E. Marginal Way		
Phone Number 206 467-8733	City Seattle	State WA	ZIP+4 98124
Job Site C.A.S. James Lewis	Phone number 206 762-0850		
JOB SITE		FACILITY	
Address 300 Middle Water Way		Type Office	
Building Name Part of Tea Foss Water Way Restoration Project	Room	Age 40+	Size 5200
City Tacoma	WA	<input type="checkbox"/> Remodel <input checked="" type="checkbox"/> Demolition <input type="checkbox"/> Repair <input type="checkbox"/> Maintenance	
ZIP + 4 98421	County Pierce		

QUANTITY OF ASBESTOS TO BE: ☒ REMOVED ☐ ENCAPSULATED

Quantity	7800	square feet	<input checked="" type="checkbox"/> Indoors	<input checked="" type="checkbox"/> Outdoors
<input type="checkbox"/> Fireproofing	<input type="checkbox"/> Boiler insulation	CONTROL MEASURES		
<input type="checkbox"/> Popcorn ceiling	<input type="checkbox"/> Duct paper	<input checked="" type="checkbox"/> Neg. pres. enclosure	<input checked="" type="checkbox"/> Wrap & cut	
<input type="checkbox"/> CAB	<input checked="" type="checkbox"/> VAT	<input type="checkbox"/> Glove bag	<input checked="" type="checkbox"/> Wet methods	
<input checked="" type="checkbox"/> Sheet vinyl	<input type="checkbox"/> Roofing	<input type="checkbox"/> Mini enclosure	<input checked="" type="checkbox"/> HEPA vacuum	
<input checked="" type="checkbox"/> Asbestos paper	<input checked="" type="checkbox"/> Other ceiling tile	<input type="checkbox"/> Critical barriers	<input checked="" type="checkbox"/> Manual methods	
Quantity	1400	linear feet	<input type="checkbox"/> Other	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Mag. pipe insulation	<input type="checkbox"/> Cement asbestos pipe	RESPIRATORY PROTECTION		
<input checked="" type="checkbox"/> Air cell pipe insulation	<input checked="" type="checkbox"/> Mudded pipe ins.	<input type="checkbox"/> 1/2 mask APR	<input type="checkbox"/> Type C continuous flow	
<input type="checkbox"/> Ducting/duct insulation	<input type="checkbox"/> Duct tape	<input checked="" type="checkbox"/> Full face APR	<input checked="" type="checkbox"/> Type C pressure demand	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> PAPR	<input type="checkbox"/> Other	

INSTRUCTIONS—NOTICE OF ASBESTOS ABATEMENT PROJECT

THIS NOTICE MUST BE RECEIVED NO LATER THAN 10 CALENDAR DAYS PRIOR TO THE START DATE

Notices must be faxed or mailed to the regional office with jurisdiction over the project. Address correspondence to "Industrial Hygiene Compliance." Notice is not required for any asbestos project involving less than forty-eight (48) square feet of surface area, or less than ten (10) linear feet of pipe unless the surface area of the pipe is greater than forty-eight (48) square feet. Notification requirements are found in WAC 296-65-020. Exemptions to the asbestos project definition are found in WAC 296-62-07722(3)(b).

REGIONS	MAILING ADDRESS	PHONE #/ FAX#
Region 1: Island, San Juan, Skagit, Snohomish, and Whatcom	729 – 100 th St SE Everett WA 98208-3727	Phone: 425-290-1408 Fax: 425-290-1437
Region 2: King	315 5 th Ave S Ste 200 Seattle WA 98104-2607	Phone: 206-515-2786 Fax: 206-515-2784
Region 3: Clallam, Jefferson, Kitsap and Pierce	950 Broadway, Suite 200 Tacoma, WA 98402-4453	Phone: 253-596-3868 Fax: 253-596-3903
Region 4: Clark, Cowlitz, Grays Harbor, Klickitat, Lewis, Mason, Pacific, Skamania, Thurston and Wahkiakum	PO Box 44611 Olympia WA 98504-4611	Phone: 360-896-2378 Fax: 360-902-5437
Region 5: Adams, Benton, Chelan, Columbia, Douglas, Franklin, Grant, Kittitas, Okanogan, Walla Walla and Yakima	519 Grant Rd East Wenatchee WA 98802-5459	Phone: 509-886-6500 Fax: 509-886-6510
Region 6: Southeast Adams, Asotin, Ferry, Garfield, Lincoln, Stevens, Pend Oreille, Spokane, and Whitman,	901 N Monroe St Ste 100 Spokane WA 99201-2149	Phone: 509-324-2526 Fax: 509-324-2618

Start and completion dates: Exact starting and completion dates of the asbestos project, including shifts during which abatement work will be accomplished. These dates must not conflict with the dates specified for asbestos removal in the contract. Any change in these dates or work shifts must be communicated to the department by an amended notice.

- When the starting date or time changes, the amended notice must be filed no later than 5:00 p.m. on the business day prior to the starting date in the original notice and prior to the new starting date.
- When the completion date or time changes, the amended notice must be filed before completion of the project, and within eight hours from when the person learns that the change will occur.

Work hours: Give start and stop times for each work each day (including all shifts) and check the days of the week that work will occur. If the work shifts run overnight, check the day the shift begins. (For example if you work Friday from 6 pm to 4 am mark Friday and not Saturday, unless another shift begins on Saturday.)

Initial or Amended Notice: Initial notice is only the first notice on a project, any updates should be marked as amended.

Emergency: If the project is an emergency situation (reasonably unforeseeable projects involving significant ongoing hazards) notice must be provided to the Department within three (3) working days of starting work. **Note:** Projects considered emergencies by other regulatory agencies might not be considered an emergency under Labor and Industries regulations. There are additional posting and communication requirements for emergency projects, see WAC 296-65-020(5). Contact the regional industrial hygiene compliance staff if there are questions regarding emergencies.

Hold: Use these boxes to place a project on hold if the schedule has been temporarily delayed or if work is intermittent. To be timely notice must be received in the same manner as changes in starting and completion times. If the specific dates are known, a schedule may be attached to the initial notice, rather than filing multiple amended notices.

Property Owner: This box must contain the name of the property owner. If anyone will be representing the owner during the work the owner's agent and company must be provided. An owner's agent may be a property manager, attorney, architect, bank, holding company, etc. Provide an address and phone number for contacting the owner or their agent.

Job Site and Facility: You must include a complete and accurate job site address. This information must include the street location, city, Zip code and county. If the site is a large structure or complex of many buildings using the same street address, you must further identify where, within that complex, your project will be performed including the specific building and room. Additionally, describe the facility type (office, school, apartment, house, etc.), age (years), and size (square feet).

Quantity of asbestos to be removed: Determine the total quantity of material to be removed, in both square feet and linear feet. Check the box for each type of material to be removed. Include all materials to be handled during the project.

Large-scale, on-going projects: If you are submitting an annual waiver request for a large-scale, on-going project or maintenance program under WAC 296-65-020(3), contact the regional Industrial Hygiene Compliance Supervisor for permission and instruction for your submittal. Information in addition to this form may be required.

If any information on your notice should change for any reason, you must file an amended notice. Circle all new information on your amended notice before you submit it.

- If you have to change a job site address, you must include the old job address on the amended notice
- All amended notices must go to the same office to which the initial notice was filed (even if there was an error in submitting the initial notice).



422 SOUTH FOREST STREET
SEATTLE, WA. 98134

PHONE: (206) 467-8733 FAX: (206) 467-6307

Facsimile Transmittal

To: PSCAA

Fax: (206) 343-7522

From: Gary Hansen

Date: 8/11/2003

Re: Attached Notice

Pages: 1 + cover

CC:

☒ Urgent

☐ For Review

☐ For Your Files

☒ Please Reply

☐ Please Recycle

Notes: We need to pay the filing fee for the attached amendment with our Visa Card.

Please call Colleen Flanigan at (206) 467-8733 for the card #.

Thanks, Gary

CONFIDENTIAL



NOTICE OF ASBESTOS ABATEMENT PROJECT

THIS NOTICE MUST BE RECEIVED NO LATER THAN 10 CALENDAR DAYS PRIOR TO THE START DATE
COMPLETE ALL APPLICABLE BOXES - INCOMPLETE OR ILLEGIBLE NOTICES WILL NOT BE ACCEPTED
MAIL OR FAX TO THE REGIONAL OFFICE - CIRCLE CHANGES ON AMENDED NOTICES

Notice date: 6 / 27 / 03	Initial <input checked="" type="checkbox"/> Amended <input type="checkbox"/>	Site Work Hours	Su	Mo	Tu	We	Th	Fr	Sa
Start date: 7 / 7 / 03	On Hold <input checked="" type="checkbox"/> Off Hold <input type="checkbox"/>	6 am to 4:30 pm		X	X	X	X	X	
Completion: 7 / 21 / 03	Emergency <input type="checkbox"/>	Project Dates and Work Hours must be Exact							

CONTRACTOR		PROPERTY OWNER	
Company Name Performance Abatement Services, Inc	Name Simpson Timber Company		
Contractor Certification Number 1016	Owner's Agent Rob Riller		
Signature 	Company Manson Construction Co		
Printed Name Paul Hanway	Address 5209 E. Marginal Way		
Phone Number 206 467-8733	City Seattle	State WA	ZIP+4 98124
Job Site C.A.S. James Lewis	Phone number 206 762-0850		
JOB SITE		FACILITY	
Address 300 Middle Water Way		Type Office	
Building Name Part of Tea Foss Water Way Restoration Project	Room	Age 40+	Size 5200
City Tacoma	WA	<input type="checkbox"/> Remodel <input checked="" type="checkbox"/> Demolition <input type="checkbox"/> Repair <input type="checkbox"/> Maintenance	
ZIP + 4 98421	County Pierce		

QUANTITY OF ASBESTOS TO BE: ☒ REMOVED ☐ ENCAPSULATED

Quantity <u>7800</u> square feet	<input checked="" type="checkbox"/> Indoors <input checked="" type="checkbox"/> Outdoors
<input type="checkbox"/> Fireproofing <input type="checkbox"/> Boiler insulation <input type="checkbox"/> Popcorn ceiling <input type="checkbox"/> Duct paper <input type="checkbox"/> CAB <input checked="" type="checkbox"/> VAT <input checked="" type="checkbox"/> Sheet vinyl <input type="checkbox"/> Roofing <input checked="" type="checkbox"/> Asbestos paper <input checked="" type="checkbox"/> Other <u>ceiling tile</u>	CONTROL MEASURES <input checked="" type="checkbox"/> Neg. pres. enclosure <input checked="" type="checkbox"/> Wrap & cut <input type="checkbox"/> Glove bag <input checked="" type="checkbox"/> Wet methods <input type="checkbox"/> Mini enclosure <input checked="" type="checkbox"/> HEPA vacuum <input type="checkbox"/> Critical barriers <input checked="" type="checkbox"/> Manual methods <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____
Quantity <u>1400</u> linear feet	RESPIRATORY PROTECTION
<input checked="" type="checkbox"/> Mag. pipe insulation <input type="checkbox"/> Cement asbestos pipe <input checked="" type="checkbox"/> Air cell pipe insulation <input checked="" type="checkbox"/> Mudded pipe ins. <input type="checkbox"/> Ducting/duct insulation <input type="checkbox"/> Duct tape <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____	<input type="checkbox"/> 1/2 mask APR <input type="checkbox"/> Type C continuous flow <input checked="" type="checkbox"/> Full face APR <input checked="" type="checkbox"/> Type C pressure demand <input type="checkbox"/> PAPR <input type="checkbox"/> Other _____





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 1.08 B.2 Air Monitoring Plan

CERTIFICATE OF WORK AREA CLEARANCE

PAS, Inc CERTIFICATION OF VISUAL INSPECTION. This certification is to be completed by the Contractor, PAS Inc. and certified by the Owner at completion of work in each functional space. The Contractor hereby certifies that it has visually inspected the work area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, decontamination unit, sheet plastic, etc.) and has found no dust, debris, or residue.

Identity of Work Area:

by: PAS QC (Signature)

Date: _____

(Print Name and Title)

OWNER WORK AREA CLEARANCE CERTIFICATION

The Owner hereby certifies that it has accompanied the Contractor on its visual inspection and verifies that this inspection has been thorough and air clearance sampling valid according to specifications to the best of its knowledge and belief.

Air Sample Identification #:
Analyzed By:

Volume:

Time Sample Taken:

Flow Rate:

Air Sampling Results:

CLEARED FOR REOCCUPANCY(or Demolition)

by:
(Signature) _____

Date: _____



AIR MONITORING PLAN

PROJECT:

WORK ORDER NO.: DC 2001

SPECIFICATION NO.: G-253-03

Performance Abatement Services (PAS) shall retain the services of an independent air-monitoring firm to perform specified services and testing. The independent air-monitoring firm shall function at all times to protect the health of personnel on the job site as well as the environment, and shall perform its duties in the best interest of the Owner.

The following sampling shall be performed:

1. Pre-Abatement Air Samples. Pre-abatement air sampling shall be performed in the work area before commencement of abatement. The purpose of the pre-abatement air monitoring will be to determine the relative airborne asbestos concentrations in an area during the normal functioning of that building or space prior to abatement.
2. Outside Environmental Samples. Samples shall be taken outside the work area within 10 feet of each exit of the decontamination chamber or within 10 feet of the perimeter of regulated areas and within 10 feet of the exhaust of each HEPA filtration unit. Air sampling results shall be provided to the City of Tacoma within 2 days after the sampling. The purpose of the outside environmental sampling is to document acceptable conditions of and to detect faults in the abatement work procedures or any breach of containment barriers. Samples will be collected adjacent to the work area, at the HEPA exhaust and decontamination entrance.
3. Worker Samples. Personal air samples shall be taken in the breathing zones of workers performing asbestos abatement in sufficient numbers to permit estimation of peak and time-weighted average (TWA) exposures. At a minimum, for TWA exposures, one personal sample on the worker with the highest probable exposure, and one 30-minute excursion limit sample at the peak of abatement activity, shall be collected in each work area per 8-hour shift according to WAC 296-62-07709(d). Air sampling results shall be provided to the City of Tacoma within 24 hours of the end of the shift in which the samples were obtained. These samples will be taken to determine effectiveness of work practices, engineering controls and adequate respiratory protection. The name, social security number or abatement worker certification number, protective devices worn and work activity will be documented.

4. **Work Area Samples.** Work area samples shall be taken at breathing zone height and shall be protected from direct contamination (drips, overspray, and the like) during sampling. At a minimum, one work area sample shall be taken per work area per 8-hour work shift. Air sampling results shall be provided to the City within 24 hours of the end of the shift in which the samples were obtained. The purpose of this air monitoring will be to detect airborne fiber counts which may significantly challenge the ability of the work area to protect the non-work areas from contamination by airborne fibers and to ensure proper work practices and engineering controls. Worker respiratory protection will also be evaluated based on these results.
5. **Clearance Samples.** Asbestos clearance locations shall correspond with pre-abatement locations in each functional space. Acceptable clearance criteria shall be 0.01 f/cc. PAS (accompanied by the City of Tacoma and the OER, at their discretion) shall conduct a visual inspection of the work area to verify completion of the work. If it is satisfactory, the independent air-monitoring firm shall conduct clearance air sampling in the work area after the lock-down encapsulant has been allowed to dry (minimum 1 hour).
 - a) The air-monitoring firm shall start and stop the sampling pumps, and sample at least 1,200 liters of air. If the clearance air sample results do not meet the clearance criteria as specified above, PAS shall reclean the area and have it resampled for air clearance as necessary, at no additional cost to the City of Tacoma.

The following criteria shall be used when taking the air samples listed above:

1. Minimum volumes may be adjusted in accordance with appropriate industrial hygiene practice to achieve a filter loading in the range of 100 to 1,300 fibers per square millimeter (f/m²) of filter area.
2. Sample volumes smaller than 40 liters will only be utilized in situations in which asbestos or other contaminants are present at such high levels that the sampling filter would become clogged if a higher volume were used.
3. The independent air-monitoring firm shall furnish and maintain all monitoring equipment used and required herein.
4. If area fiber concentrations outside of the work area are equal to or above 0.01 f/cc (or the background level, whichever is lower), PAS shall immediately notify the City of Tacoma and OER and all abatement work in that work area shall stop and will not resume until written authorization from the City of Tacoma has been received.
5. If fiber levels in other areas of the building exceed 0.01 f/cc (or the background level, whichever is lower) and are determined by the City of Tacoma to be related to PAS' abatement work, PAS shall sufficiently clean the areas to reduce the fiber levels to below 0.01 f/cc or the background level, whichever is lower.
6. If any personal air sample taken during glove bag work exceeds 0.1 f/cc during the course of the project, PAS shall immediately notify both the City of Tacoma and the OER.

7. If any air sample taken outside of the work area exceeds 0.01 f/cc for any period, PAS shall immediately and automatically stop all work and notify both the City of Tacoma and the OER. The affected area will then be decontaminated and re-sampled until a reading of less than 0.01 f/cc or the background level, whichever is lower, is obtained.
8. Respiratory protection shall be worn in affected area until area is cleared for reoccupancy.

The minimum number of daily samples associated with this project is as follows:

1. One (1) "area" air samples within the work area.
2. One (1) sample located in the clean room of the decontamination area.
3. One (1) air sample located at the exhaust (s) of the HEPA filtration Unit (if more than one unit is used, the sampling location may be alternated between units, however, and each unit must be sampled at least once every three days.)
4. Three (3) "environmental" air samples located adjacent to perimeter of regulated work area.
5. Personnel samples (excluding excursion samples) are to be taken at least twice per eight-hour work shift for 25% of each work group performing similar tasks in the same work area. Persons performing separate tasks or in separate work areas will be sampled separately.
6. Short Term Excursion Samples will be taken for each person being monitored as required by 29 CFR 1926.1101.
7. Two (2) waste load-out samples for the full duration of the operation, one "area" sample taken on the clean side of the wash-down station, and one "personal" sample on the person performing the load-out operation.

The following criteria shall be used when analyzing the air samples listed above:

1. Asbestos air samples will be analyzed on-site using the WISHA Reference Method (NIOSH 7400 method). Results will be reported by posting them conspicuously on the job site no later than 24 hours after the end of the shift in which the sample is taken.
2. Documentation on each sample shall include at least the date and time, sample number, exact sampling location, name(s) of individual(s) performing sampling, a description of work being performed at the time of sampling, sampling rate, sampling volume, analytical method, analytical results, and limit of detection as per NIOSH analytical methods.
3. The laboratory shall submit signed permanent records of all analyses to the City of Tacoma within one week of the date of each analysis. Within 24 hours of the end of the shift in which the samples were obtained, air monitoring results shall be posted on-site.

4. Quality Control - Laboratory Testing. The asbestos analytical laboratory retained by PAS shall prove proficiency in the AIHA/NIOSH PAT program and shall have a laboratory manual and quality control program. The quality control program shall minimally meet or exceed L&I standards.

The following analytical methods will be used by the AMF in analyzing asbestos air samples:

1. Sampling and analysis for personal and area samples will be conducted according to Appendix A to 29CFR1926.1101, Appendix B to 29CFR 1926.1101, NIOSH Method 7400, or NIOSH Method 7402.
 - a. A 25 mm cassette with 0.8 μ m pore mixed cellulose ester filters will be used for PCM sampling.
 - b. Sample volumes will be collected to provide optimum loading of 100 to 1300 f/mm².
 - c. Area clearance samples will be taken using a minimum volume of 1200 liters.
 - d. All Area (inside work area-IWA), Environmental (outside work area-OWA), and personal air sampling will be conducted continuously throughout work shifts.
 - e. Field blanks will be submitted with the daily PCM air samples collected based on 10% or a minimum of 2 field blanks per day.



AIHA

The Essential Source

May 29, 2003

FRED GOLLAWAY
PACIFIC RIM ENVIRONMENTAL INC.
6510 SOUTH CENTER BOULEVARD
TUKWILA WA 98188

Lab ID# 102562

Dear FRED GOLLAWAY

Enclosed are your Proficiency Analytical Testing (PAT) Round 153 results.

PAT Round 154 sample kits will be mailed to laboratories around July 1, 2003.
Results will be due to AIHA on August 1, 2003. The analytes for round 154 are:

Metals - cadmium, chromium, lead
Organics - benzene (BNZ), o-xylene (OXY), toluene (TOL)
Asbestos - amosite

If you have any questions, please contact Keesha McCormick at AIHA, (703) 846-0797.

Your Password to enter data via the internet is now included on the submission form included with the PAT samples. Your password is in the upper left hand corner (next to your lab ID#) of the mailing address label. Please do not call AIHA for your password. Because of security concerns, passwords will not be given over the phone.

Please note: After submitting your data on the PAT data web site, it is very important to print the confirmation page. Save this page as verification that results have been submitted.

The address to enter PAT results is: <http://www.aiha.org/pat>

The AIHA Laboratory Quality Assurance Programs, Policies and Application for AIHA accreditation are available on-line.

<http://www.aiha.org>

Note: The Policies for 2002 comply with ISO 17025.

The application covers the following programs:

1. Industrial Hygiene Laboratory Accreditation Program (IHLAP) including Bulk Asbestos as an analyte
2. Environmental Lead Laboratory Accreditation Program (ELLAP)
3. Asbestos Analysts Registry (AAR)
4. Environmental Microbiology Accreditation Program (EMLAP)

Sincerely,

Keesha T. McCormick
PAT Data Specialist

American Industrial Hygiene Association
2700 Prosperity Ave., Suite 250, Fairfax, VA
22031
(703) 849-8888 (703) 207-8558 fax
InfoFax Service Line (703) 641-INFO or Internet:

PROFICIENCY ANALYTICAL TESTING (PAT) PROGRAM
SUMMARY RESULTS OF ALL LABS FOR ROUND 153

CONTAMINANT (UNIT)	SAMPLE NO.	SUMMARY STATISTICS OF ALL LABS N	MEAN*	STD ^a	RSD(%)&	# LABS RATED	# OF LABS ACCEPTABLE	# LOW OUTLIER	#HIGH OUTLIER
CADMIUM (MG)	1	234	0.0078	0.000311	4.0	234	220	9	5
	2	234	0.0148	0.000592	4.0	234	219	8	7
	3	234	0.0050	0.000204	4.1	234	217	8	9
	4	234	0.0099	0.000394	4.0	234	222	6	6
LEAD (MG)	1	235	0.0592	0.002367	4.0	235	226	5	4
	2	235	0.0197	0.000836	4.2	235	219	6	10
	3	235	0.0791	0.003166	4.0	235	227	7	1
	4	235	0.0492	0.00197	4.0	235	222	8	5
ZINC (MG)	1	234	0.1186	0.004775	4.0	234	212	14	8
	2	234	0.0604	0.002549	4.2	234	206	13	15
	3	234	0.1489	0.005955	4.0	234	209	16	9
	4	234	0.0993	0.004036	4.1	234	213	12	9
SILICA (MG)	1	69	0.1131	0.016787	14.8	69	65	2	2
	2	69	0.1540	0.021865	14.2	69	67	2	0
	3	69	0.0627	0.010452	16.7	69	65	2	2
	4	69	0.0880	0.013659	15.5	69	66	1	2
ASBESTOS/FIBERS (F/MM2) +	1	166	59.5530	11.91061	20.0	834	662	69	103
	2	166	115.3116	23.06232	20.0	834	705	74	55
	3	166	160.7277	32.14553	20.0	834	695	94	45
	4	166	71.8909	14.37818	20.0	834	747	37	50
METHYL ETHYL KETONE (MG)	1	200	0.1921	0.011522	6.0	200	185	5	10
	2	200	0.4871	0.025275	5.2	200	186	3	11
	3	200	0.9731	0.047653	4.9	200	185	7	8
	4	200	0.3635	0.019552	5.4	200	183	7	10
METHYL ISOBUT KETONE (MG)	1	200	0.7886	0.036043	4.6	200	182	9	9
	2	200	0.0985	0.006491	6.6	200	188	6	6
	3	200	0.2967	0.015193	5.1	200	186	7	7
	4	200	0.4937	0.023579	4.8	200	183	9	8

- * MEAN - The mean of all laboratories. These values were listed on the individual laboratory report.
^a STD - standard deviation
 & RSD - relative standard deviation=((STD/MEAN)*100%)
 + - Results for fibers are calculated on transformed data.



AAT Performance Results

2700 Prosperity Ave., Suite 250, Fairfax, VA 22031: Phone (703) 849-8888 Fax (703) 207-3561

Fred Gollaway
Pacific Rim Environmental, Inc.
6510 South Center Boulevard
Tukwila, WA 98188

April 16, 2003
Laboratory ID: 102562

REPORT OF PERFORMANCE FOR ROUND # 65, ORGANIZATION #102562

THE FOLLOWING INDIVIDUALS HAVE MET ALL THE REQUIREMENTS FOR LISTING IN THE ASBESTOS ANALYSTS REGISTRY (AAR) AND HAVE BEEN APPROVED BY THE AIHA ANALYTICAL ACCREDITATION BOARD:

ID	NAME (Approved)	RESULTS (f/mm ²) FOR THE CURRENT ROUND (R65)								OUTLIERS			PERFORMANCE RATING
										R65	R64	TOT	
2186	*Gollaway, William	A652	273	B652	390	C652	303	D652	279	0	0	0	ACCEPTABLE
7799	*Reitz, David	A652	379	B652	406	C652	444	D652	643	0	0	0	ACCEPTABLE
8205	*Lewis, Karen	A652	209	B652	227	C652	220	D652	460	0	0	0	ACCEPTABLE
8206	*Lewis-Andela, Lorr	A652	286	B652	311	C652	289	D652	863	0	0	0	ACCEPTABLE

THE DETERMINATION OF OUTLIERS FOR THE ABOVE RESULTS ARE BASED ON THE FOLLOWING PERFORMANCE LIMITS:

Round #: 65

PLE ID:	A651	B651	C651	D651	A652	B652	C652	D652
LOWER LIMIT:	144	172	186	223	159	179	190	297
REF VALUE:	287	344	373	446	317	357	380	595
UPPER LIMIT:	574	688	745	891	636	714	755	1189

IT IS THE ORGANIZATION'S RESPONSIBILITY TO THOROUGHLY REVIEW RESULTS AND TO IMMEDIATELY CONTACT AIHA IN WRITING TO REQUEST REMOVAL FROM THE ASBESTOS ANALYSTS REGISTRY ANY ANALYST WHO IS NO LONGER A MEMBER OF THEIR ORGANIZATION.

LEGEND:

- 999?OUT denotes that a sample ID or sample result was incorrectly submitted or left blank.
---- denotes that a sample ID or sample result was incorrectly submitted or left blank.

CRITERIA FOR AIHA BOARD APPROVAL:

- 1) An organization has to be reviewed and approved by the Asbestos Analysis Committee (AAC) and has to meet all the requirements of the most current AIHA AAR Policies and NIOSH 7400 method.
- 2) An analyst has to have completed (2) consecutive AAT rounds with combined score of ≤ 2 outliers.

PROFICIENCY ANALYTICAL TESTING (PAT) PROGRAM
 LABORATORY YEAR-TO-DATE PERFORMANCE REPORT FOR ROUND 153
 LAB ID=102562 MAY 23, 2003
 PACIFIC RIM ENVIRONMENTAL, INC., TUKWILA, WA 98188

SAMPLE TYPE	ROUND	ROUND * PERFORMANCE	ACCUMULATED PERFORMANCE		PROFICIENCY	
			4 ROUNDS (%)	2 ROUNDS (%)	RATING #	
ASBESTOS/FIBERS	150	4/4				
	151	4/4				
	152	4/4				
	153	4/4	16/16	100	8/8	100 P

* The denominators represent the total number of samples to be analyzed.

The numerators represent the number of acceptable results.

A '-' represents non-submittal and is calculated as a zero in the numerator.

P : Proficient

N: Nonproficient

Performance ratings are based on expected results over four rounds (one year). A lab's performance on each sample type is rated proficient (P), if: 1) three-fourths (75%) or more of the accumulated results over four rounds are acceptable or 2) for the last two rounds, all samples are analyzed and the results are 100% acceptable. If a laboratory receives samples for a contaminant and does not report the data, the results will be considered unacceptable for that contaminant.

PROFICIENCY ANALYTICAL TESTING (PAT) PROGRAM
INDIVIDUAL LABORATORY REPORT FOR ROUND 153
LAB ID=102562 MAY 23, 2003
PACIFIC RIM ENVIRONMENTAL, INC., TUKWILA, WA 98188

CONTAMINANT (ABV.)	UNIT	SAMPLE NO.	REPORTED RESULTS	MEAN VALUES *	ACCEPTABLE LOWER	RANGE# UPPER	Z & SCORE	LAB @ PERFORMANCE
ASBESTOS/FIBERS (ASB/MMF)	(F/MM2)	1	60.1000	59.5530	29.1810	100.6446	0.05	A
	(F/MM2)	2	94.3000	115.3116	56.5027	194.8766	-0.96	A
	(F/MM2)	3	139.7000	160.7277	78.7566	271.6298	-0.68	A
	(F/MM2)	4	85.4000	71.8909	35.2265	121.4956	0.90	A

* Mean values are the mean of all laboratories based on original scales except for asbestos. Asbestos results are calculated based on transformed data. Therefore, asbestos performance limits are not symmetrical to the mean values.

Upper limit: mean value + 3 standard deviations
Lower limit: mean value - 3 standard deviations
& Z Score = (reported result - mean value) / standard deviation

a A: Analysis acceptable -: Results not reported
H: Results > upper limit (2 > 3), not acceptable L: Results < lower limit (2 < -3), not acceptable

Note: the acceptability of reported results is based on z-scores. This is why a reported result may appear acceptable according to performance limits, but be identified as an outlier.

Section 02080 1.07 B Fall Protection Plan

Monitoring:

Exposure Assessments and Monitoring

(General Monitoring Criteria):

1. Each employee who has a workplace or work operation where exposure monitoring is required shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.
2. Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.
3. Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minutes exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

Exposure Assessment:

1. Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment" and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.
2. Basis on Initial Exposure: The initial exposure assessment shall be based on data derived from the following sources:
 - a) If feasible, the employer shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted.
 - b) In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "negative exposure assessment" conducted.
 - c) For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.
3. Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria:

- a) Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or
- b) Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job. The monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or
- c) The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30 minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

Periodic Monitoring

- 1. Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer has made a negative exposure assessment for the entire operation.
- 2. For all operations under the standard other than Class I and II operations, the employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.
- 3. Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the positive-pressure mode, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

Termination of Monitoring

1. If the periodic monitoring reveals that employee exposures, as indicated by statistically reliable measurement are below the permissible exposure limit and excursion limit, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.
2. Additional monitoring. The employer shall institute the exposure monitoring required whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in a new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

Observation of Monitoring

1. The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos, conducted in accordance with this section and shall also have access to the records thereof.
2. When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

Excursion Limit Sampling (STEL):

PAS shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fibers per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes. The representative 30-minute short-term employee exposure shall be determined on the basis of one or more samples representing 30-minute exposures associated with the operations that are most likely to produce exposures above the excursion limit for employees in the work area.



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

**Section 02080 Statement of Qualifications for Pacific Rim
Environmental (Independent Laboratory)**



PACIFIC RIM ENVIRONMENTAL, INC.

SEATTLE ANCHORAGE

PACIFIC RIM ENVIRONMENTAL, INC. STATEMENT OF QUALIFICATIONS

Pacific Rim Environmental, Inc. has the staff and capability to provide for your environmental consulting needs. Our staff has experience performing projects ranging from small residential surveys to major renovation and demolition projects. We also provide 24-hour emergency on call services.

SCOPE OF SERVICES

Asbestos Services

Onsite Asbestos Air Monitoring and Analysis
Asbestos Building & Facility Surveys
PCM & PLM Laboratory Analysis
Asbestos Hazard Condition Assessments
Asbestos Operations & Management Planning
Specification Writing & Design Services
Project Management
Contract Administration

Lead Services

Lead Building & Facilities Surveys
Lead Abatement Project Management and Oversight
Lead Abatement Specification Writing/Design Services
Lead Air Monitoring
Employee Awareness Training
Contract Administration
AutoCAD

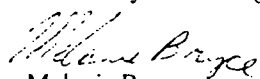
STAFF / LABORATORY CREDENTIALS AND ACCREDITATION ARE AS FOLLOWS

Certified Industrial Hygienist
NIOSH 582 Industrial Hygienists
AIHA-Proficiency Analytical Testing (PAT) Program Participant, Lab ID #102562
NVLAP Accreditation for Bulk Asbestos Fiber Analysis, Lab ID# 101631-0
AHERA Accredited Building Inspectors, AHERA Management Planners, and Project Designers
AHERA Certified Asbestos Supervisor
AAR Asbestos Analyst Registry
EPA Accredited Lead Inspector
EPA Accredited Lead Risk Assessor
Certified XRF Lead Detection Unit Operators
Advanced Microscopic Identification of Asbestos

Insurance: Pacific Rim Environmental, Inc. maintains general and professional liability insurance in the amount of \$2,000,000.00 each.

Federal Tax ID#: (b)(6)

If you have questions regarding any of the services that our company provides, please feel free to contact me at (206) 244-8965 or by e-mail at (mbryce@pacrimenv.com).



Melanie Bryce
Pacific Rim Environmental, Inc.

Corporate Office
6510 Southcenter Blvd., Ste. #4
Seattle, WA 98188
Phone: (206) 244-8965
Fax: (206) 244-9096

Anchorage Office
8501 East 12th Court
Anchorage, AK 99504
Phone/Fax: (907) 569-8081
Pager: 1-888-341-8081



PACIFIC RIM ENVIRONMENTAL, INC.
SEATTLE *ANCHORAGE*

Statement of Qualifications

Prepared For:

**Performance Abatement Services, Inc.
422 South Forest Street
Seattle, WA 98134**

November 15, 2002

INTRODUCTION

INTRODUCTION

OVERVIEW

Pacific Rim Environmental, Inc. is a full service environmental consulting firm specializing in asbestos and lead-based paint surveys, abatement project design, contract administration, industrial hygiene services, OSHA and WISHA compliance monitoring, as well as other environmental management services.

Founded in 1990, *Pacific Rim Environmental* (PRE) was established with the underlying purpose of offering more accurate and personalized client service. Since its inception, PRE has assembled a team of highly qualified environmental professionals. All PRE personnel are known and respected as "hands-on" consultants with significant construction and contracting experience. PRE was established to service the industrial sector of the environmental industry, and has since successfully expanded into the commercial and institutional arenas. As a result, PRE has grown 1000% since its inception.

Our mission is to provide the highest quality and most cost effective consulting services available in the industry, while maintaining an absolute emphasis on client service. The diversity of our clientele clearly depicts our ability to maintain professional relationships with building owners, developers, property managers, general contractors and government agencies. Our past experience with large industrial facilities such as Alaska Pulp Mill, Port Townsend Paper Mill, and Weyerhaeuser's Everett-Kraft Mill makes us one of the most experienced consultants available for the assessment and abatement of these types of facilities. However, our experience performing comprehensive lead and asbestos surveys for Harborview Medical Center, the Space Needle, Hilton Hotels, and over eighty Safeway stores confirms our ability goes beyond the industrial sector into the institutional and commercial sectors.

In addition to our experience in the private sector, all PRE personnel have experience interfacing with the regional government operated regulatory agencies, including the EPA Region 10 Office, Puget Sound Air Pollution control Agency, other local air pollution control agencies, Washington State Department of Ecology and Department of Labor and Industries. Our efforts both in project design and field management have consistently resulted in favorable determinations from regulatory agency personnel. PRE is extremely proud of their performance record and has never failed to complete a written public or private contract, nor have we experienced a dissatisfied client based on the comprehensive quality of our work.

PRE is a very successful and profitable corporation, which is in the unique position of being well capitalized with no long-term debt. Our financial condition can be investigated through Dunn and Bradstreet or by contacting our financial institutions.

STAFF QUALIFICATIONS

PRE maintains a full time staff of 14 employees who are highly trained in various aspects of the construction and environmental industry. Management personnel are always the initial point of contact for a project and will remain the primary point of contact throughout the project. Following through in this manner allows PRE to achieve its goal of total client satisfaction and maintain overall control of the project.

Our management staff is comprised of individuals who possess both field and design experience in all environmental aspects associated with commercial, institutional and industrial construction and renovation. Resumes and brief descriptions of experience are found in the Staff Qualifications section of this package.

Staff Credentials/Accreditation's

Certified Industrial Hygienist
AIHA-Proficiency Analytical Testing
AHERA Building Inspector
AHERA Project Designer
US Navy Certified Gas Free Engineer
Licensed UST Service Provider
HAZWOPER 40 & 80 Hour Supervisors
CPR/First Aid
Microscopic Identification of Asbestos

NIOSH 582 Industrial Hygienists
PAT Program, Lab ID #98188-001
AHERA Management Planner
AHERA Contractor Supervisor
EPA Accredited Lead Inspectors
UST Decommissioning Provider
Computer Aided Drafting & Design (CAD)
Certified XRF Lead Detection Unit Operators
Advanced Asbestos Identification

TECHNICAL SUPPORT

Pacific Rim Environmental, Inc. possesses the "state of the art" in computer systems and software specifically tailored for the environmental and construction industry. Our primary software consists of Microsoft products, yet we also utilize Lotus 123 and the Wind2 Accounting System. In addition, with AutoCAD LT we have the ability to interface with architects and engineers and produce detailed drawings for both survey and design documents. With AutoCAD LT and other graphically oriented programs we also have the ability to produce presentation quality media. The following is a list of software we utilize:

Microsoft (MS) Windows for WorkGroups
MS Excel
MS Access
MS Powerpoint
MS Project
MS Publisher

Lotus 123
FoxPro
AutoCAD LT
Wind2 Accounting System

SIGNIFICANT PROJECTS/CLIENTS

Pacific Rim Environmental, Inc. has performed a multitude of different projects for a broad spectrum of clients. We have included profiles corresponding to these projects in a latter section of this package. Some of our more significant clients are the Potlatch Corporation, Idaho, Nordstrom Stores, Harborview Medical Center, Tacoma Public Schools, CH2M Hill, City of Tukwila, Federal Aviation Administration, and King County Housing Authority. More detailed descriptions of our clientele, projects and references are included in the Client List/References section.

SCOPE OF SERVICES

Asbestos Services

Our experienced staff offers a broad range of asbestos consulting and analytical services including:

- Asbestos Building & Facility Surveys
- PCM & PLM Laboratory Analysis
- Asbestos Hazard Condition Assessments
- Asbestos Operations & Management Planning
- Specification Writing & Design Services including AutoCAD
- Project Management
- Contract Administration
- On-site Air Monitoring & Analysis

Lead Services

From determination and analysis of lead hazards to management of lead abatement projects, *Pacific Rim Environmental, Inc.* provides high quality commercial, industrial and residential lead services. Our services include:

- Lead Building & Facilities Surveys
- Lead Analysis
- Lead Abatement Specification Writing & Design Services including AutoCAD
- Project Management
- Contract Administration
- Lead Air Monitoring
- Employee Awareness Training

Other Environmental Services

In addition to our asbestos and lead capabilities, *Pacific Rim Environmental, Inc.* provides a wide variety of other environmental services. With a staff of experienced Industrial Hygienists, an available CIH and experts from the construction industry, our work is both competent and cost-effective, designed to meet or exceed the needs of a broad range of clientele. These services include:

- Health & Safety Plans
- Indoor Air Quality
- Surface & Water Quality Monitoring
- Fireproofing Density & Thickness Testing
- OSHA & WISHA Compliance Monitoring
- Soil Sampling & Characterization
- Detailed Asbestos, Lead & Construction Cost Estimates and Value Engineering

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES

• ASBESTOS LABORATORY SERVICES

Air Sample Analysis Facilities

The laboratory technician utilizes on-site facilities with minimal requirements for PCM analysis. The analysis room must have a desk or table on which to setup the microscope, electrical power, and have secured access. Office laboratory analysis provides analysis and clerical space.

Security

A sample chain of custody form ensures proper handling of samples. Samples cassettes are stored in labeled boxes at the laboratory for six months after analysis.

Laboratory Flow

1. Receive samples and sign chain of custody
2. Copy signed chain of custody for client
3. Log samples
4. Assign Lab ID #'s to cassettes
5. Mount samples
6. Label mounts with Lab ID #'s
7. Count samples
8. Perform calculations
9. Complete data forms
10. Count blind recount
11. Store cassettes
12. Review report
13. Fax, phone or deliver results
14. Mail hard copy of report.

Sample Preparation

1. Open the seal on the cassette and cut a 1/4 wedge section of the filter. Place the section on a clean slide.
2. Place the slide into a quick fix (acetone vaporizer) and using a syringe drop a small amount of acetone into the quick fix.
3. When the organic filter is completely dissolved remove it from the quick fix and place a drop of triacetin on the wedge then place a cover slip onto the wedge.
4. If the slide is not clear place it on a warm surface for several minutes.

Air Sampling Methodology

1. Calibrate the pump with a primary calibrator or calibrated rotometer. Do not run personal samples greater than 2.5 liters per minute and high flow area samples greater than 15 liters per minute (AHERA area samples less than or equal to 12 lpm, AHERA clearance samples less than or equal to 10 lpm).
2. Set the pumps and stand or attach the personal pump to the worker and tape the cassette in the breathing zone of the worker.
3. Remove the cap with the open cassette at a downward 45 angle.
4. Turn the pump on and record the start time on the data sheet.
5. Utilize the sampling variables of flow rate and time to get an optimum volume for counting and quantification.
6. Turn pump off, cap cassette and record stop time.
7. Post calibrate pump.
8. Return to laboratory or on-site lab area and analyze sample.
9. Use NIOSH 7400 A Methodology and appropriate State requirements for sampling and analysis.

• INDOOR AIR QUALITY STUDY/COMPLIANCE REVIEW

While state regulations, pursuant to the evaluation and control of specific indoor air pollutant sources and indoor air quality problems, in office work environments are not yet in effect; it is the intention of *Pacific Rim Environmental* (PRE) to provide indoor air quality studies in accordance with the proposed guidelines of WAC 296-62-1200 through WAC 296-62-12023.

PRE's standard operating procedure will include, but is not limited to, the following actions:

1. Review and evaluation of symptom/illness reports to reveal patterns, locations, and proportion of the total occupants affected in a particular HVAC zone or area.
2. Walk through inspection/evaluation of areas where health symptom or illness was reported, including visual inspections of the area and discussion with employees affected.

If initial evaluation of reports and/or illnesses do not result in action or information that can serve to resolve the issue or demonstrate that illness/symptoms are not building related, the following procedures will be subsequently followed:

3. A complete review of all heating, ventilation, and air conditioning (HVAC) system documentation* to include the following:
 - a) Any available blueprints or other drawings describing HVAC zones, system components, and local exhaust systems;
 - b) Any relevant reports or information relating to previous analysis of the building's ventilation system;
 - c) Any records or logs of maintenance activities for those systems that have an integrated mechanical ventilation component;
 - d) Any other pertinent building records such as permits, as-built drawings, and Certificates of Occupancy.
4. A complete review of current HVAC operating conditions to include the following:
 - a) Analysis of outdoor air ventilation rate based on the average daily occupancy and applicable ventilation code at the time of the last permit issuing;
 - b) Inspection of any or all operating components including, but not limited to:
 - Air filters and seals
 - Drip pans and drainage piping
 - Heating and cooling coils
 - Vents and louvers
 - Dampers and damper actuators
 - Fan motor belts
 - Humidifiers and dehumidifiers
 - Air cleaners
 - c) Inspection of any or all operating components including but not limited to:
 - Thermostats
 - Control devices
 - Sensors
 - Mixing boxes
 - Ductwork
 - Air intakes
 - Cooling towers

Indoor Air Quality Study/Compliance Review (Continued)

- d) Verification of proper HVAC operation during all work shifts;
 - e) In buildings without mechanical ventilation, verification that windows, doors, vents, stacks, etc., designed and/or used for ventilation are in operable condition.
5. Verification of proper ventilation rates (60 CFM/Minute), sufficient negative pressure, and separate mechanical exhaust direct to outdoors in all designated smoking areas.
 6. Assessment of infiltration of possible outside air contaminant sources on the surrounding property (e.g., from vehicle exhausts, waste, or stored materials).
 7. Assessment of reentrance of air into the building from interior generated sources (e.g., building exhausts, plumbing vents, drain piping, etc.).
 8. Evaluation of dust controls including verification of air filtration efficiency to ASHRAE requirements. All filters should be properly fitted to prevent air by-pass.
 9. Inspection of ductwork, humidifiers, and air conditioned building spaces for visible moss, mold, algae or any standing water that may encourage microbiological growth.
 10. Monitoring for carbon dioxide** and carbon monoxide where combustion sources are present.
 11. Monitoring for any other potential contaminants deemed necessary after initial review of reports and HVAC inspection (e.g., Radon*** and other volatile organics).

* Deficiencies in the availability of system documentation will be noted in the final report as the proposed regulations will require the building owner to adequately maintain this information.

** Carbon Dioxide monitoring shall be conducted pursuant to **WAC 296-62-12017 Appendix A** which reads as follows:

Measurements of carbon dioxide are surrogate measurements for outdoor air ventilation rates in buildings. Comparisons of peak carbon dioxide readings between rooms, HVAC zones, and at varying heights above the floor, may help to identify and diagnose various building ventilation problems. Measurements of carbon dioxide levels in occupant work areas that are greater than the background (outside) carbon dioxide level (in ppm) plus 650 indicate that the outdoor ventilation rate is below ASHRAE guidelines. Reduced outdoor air ventilation rates can contribute to reported health symptoms and illnesses in building occupants. Indoor air problems could still occur in buildings where measured carbon dioxide concentrations are below the background carbon dioxide level (in ppm) plus 650. Examples would include situations where a strong source of chemical air contaminant is present in the office, or where the ventilation system is drawing in a strong contaminant source from outside the building. Elevated indoor carbon dioxide levels could possibly result from a faulty combustion compliance such as a gas fired heating appliance with a cracked heat exchanger.

Indoor Air Quality Study/Compliance Review (Continued)

Recommended measurement guidelines:

- a) Use chlorometric detector tubes or a calibrated electromechanical direct reading instrument.
- b) Measure carbon dioxide when concentrations are expected to peak, generally late in the morning and/or late in the afternoon. At these times carbon dioxide should usually be closest to an equilibrium value and best indicate outdoor ventilation rates.
- c) Measure four to five feet above the floor within the occupant's work station/work area, but away from the individual's exhaled breath, which could directly influence the reading.
- d) Measure outdoor carbon dioxide levels for comparison to indoor levels (average outdoors carbon dioxide level is 300-350).
- e) All measurements should take place during normal building and HVAC operation.

***The U.S. Environmental Protection Agency (EPA) currently sets 4 picoCuries per liter of air (pCi/l) as its "action level" for radon and encourages homeowners to reduce their indoor radon levels to below this level. The EPA has developed radon testing protocols for homes and for schools, but has not yet developed protocols specifically for commercial buildings. Pursuant to **WAC 296-62-120119 Appendix B**, PRE will conduct radon sampling following the EPA's school radon testing protocol as outlined in EPA publication 402-R-92-014.

• LEAD SAMPLING

Wipe Sampling Procedures

1. Identify area to wipe. Avoid walking on or touching the surface.
2. Remove first wipe from box and discard to ensure wipe has not been previously contaminated.
3. Cover hands with disposable gloves. Use clean gloves for each sample.
4. Remove wipe and insert aseptically into centrifuge tube. Label it with a unique identifier as the first blank.
5. Remove wipe with gloved hand, shake open, and place it flat at one corner of the surface to be wiped.
6. If the surface is a square, proceed to wipe with an "S" motion over the entire surface in a north-south direction, pressing firmly with the palm. Repeat wipe in an east-west direction. Attempt to remove all visible dust from the surface.
7. Fold the wipe in half with the contaminated side facing inward; repeat the wipe motion in both directions. Attempt to include all visible dust. Complete four passes over the visible area.
8. Fold the wipe again with the contaminated side facing inward and insert aseptically into the centrifuge tube. If gross debris is present, such as paint chips in a window well, make every attempt to include the debris with the sample.
9. Seal the tube and label with the proper identifier.
10. Measure the surface area wiped. Record location, condition of surface, area, etc., on the field sampling form.
11. Remove glove; put all contaminated gloves for the sampling period into a container designated for waste material.
12. At the conclusion of sampling, create another blank sample and label with identifier.

Paint Chip Sampling

1. Reference HUD Guidelines, Appendix 4 and 5.
2. Be certain all paint layers present are included in the sample
3. A one square inch sample is required for analysis. A one square inch area should be scored with a razor blade. In many cases the paint chip can be lifted cleanly off the surface using the sharpened scraper or putty knife. If the paint cannot be removed from the substrate in this way, use a heat gun to soften the paint. After the paint sample has been removed, measure the surface area of the actual paint chip. If necessary, cut further to form a perfect rectangle to the extent that it is feasible. If this proves unsuccessful, cut a hole in the substrate using a suitable tool. Patch the hole created in the substrate.
4. Measure the surface area exactly.
5. If the paint cannot be successfully removed from the substrate, it will be scraped off as paint flakes in the laboratory. In this case the results will be reported in weight percent rather than surface area concentration. If substantial quantities of substrate are included in the sample, it should be noted on the laboratory submittal form.
6. If the paint chips contain no substrate, it will be weighed in the lab; results will be reported in both weight percentage and surface area concentration. If the paint sample contains more than 0.5mg/cm² or 1% by weight, it is considered to be lead-based paint.

- **SOIL SAMPLING**

Soil Sample Collection

1. Composite soil samples should be collected in the 50ml centrifuge tubes used to package wipe samples. Approximately ten 5ml aliquots of surface soil should be collected from different areas along the foundation, walkway, or curbside. A stainless steel knife may be used to scoop surface soil into the container at each sample spot; or, the container itself, together with the lid, can be used as a collection device. The knife should be washed after each sample is collected.
2. It will be necessary to compress the soil into the tube using the fingers. Disposable gloves should be used for each sample collected.
3. If they are present, visible paint chips should be included in the sample.
4. Avoid including grass, twigs, stones, and other gross debris in the sample. Bare soil should be sampled in preference to covered soil.

QUALITY ASSURANCE/QUALITY CONTROL

QUALITY ASSURANCE/QUALITY CONTROL PROGRAMS

- **PAT Program**

The Proficiency Analytical Testing program, administered by the American Industrial Hygiene Association (AIHA), is used widely in the asbestos industry to determine analytical competence of laboratories. Each laboratory receives a set of samples quarterly. The results are evaluated as acceptable or unacceptable statistically and posted in the lab.

- **Interlaboratory QA**

A Round Robin sample exchange program provides analysis comparison between at least three independent laboratories conducted every six months. Results are statistically evaluated. Results are posted in lab.

- **Intralaboratory QA**

A comparison of individual *Pacific Rim Environmental, Inc.* Analysts. The lab manager administers the intra Round Robin. Results are posted in the lab.

- **Microscope Calibration**

Microscopes are inspected quarterly by the lab manager. Maintenance and calibration is the responsibility of the technician and lab manager. Daily calibration includes:

1. Phase ring/condenser alignment
2. Resolution check with HSE/NPL slide.

- **Reference Slide**

Each day the field or laboratory technician counts one reference slide and calculates and plots the standard deviation off the laboratory mean. The reference count shows trends of individual technicians and allows them to correct tendencies to count off the mean. If the reference count is greater than two standard deviations off the mean, then an additional reference slide must be read.

- **Blind Recounts**

The NIOSH 7400A method calls for second reads of 10% of the samples each day. The initial count is rejected if the difference between them exceeds $2.77(F) Sr$, where F is the average of the two counts and Sr is the standard deviation. If one recount fails the technician must recount all samples analyzed in that set.

- **Field Blanks**

Analyze at least 10% but not less than two blanks, taken from the box of cassettes used for sampling, for each sample set. Open the field blank cassette for 15 seconds at the site. Keep the control blank closed until analysis. Control blanks are used to insure the quality of cassettes received from the manufacture.

LABORATORY ACCREDITATIONS



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

January 26, 2001

Mr. William F. Golloway
Pacific Rim Environmental, Inc.
6510 Southcenter Boulevard
Tukwila, WA 98188

NVLAP Lab Code: 101631 0

Dear Mr. Golloway,

Congratulations! Your laboratory has passed the September 2000 round of proficiency testing (M22000) required by the National Voluntary Laboratory Accreditation Program (NVLAP) for Bulk Asbestos Analysis.

If your laboratory is accredited, your status remains unchanged. If your laboratory is not yet accredited, or if your laboratory's accreditation has been suspended, you will be notified of any requirements your laboratory must meet to complete the accreditation / reaccreditation process.

Enclosed you will find the Summary of Analysis and your laboratory's results.

If you have any questions, please call me at 301-975-6499, or Hazel M. Richmond at 301-975-3024.

Sincerely,

Thomas R. Davis

Thomas R. Davis, Sr. Program Manager
Laboratory Accreditation Program

Enclosure(s)

NIST



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

July 11, 2000

Mr. William Golloway
Pacific Rim Environmental, Inc.
6510 Southcenter Boulevard
Tukwila, WA 98188

NVLAP Lab Code: 101631-0

Dear Mr. Golloway:

On April 28, 2000, your laboratory was visited by an assessor representing the National Voluntary Laboratory Accreditation Program (NVLAP). The purpose of the visit was to assess your laboratory's compliance with NVLAP criteria for accreditation in the Bulk Asbestos Fiber Analysis (PLM) program.

I am pleased to inform you that the On-Site Assessment Review, which was completed on June 30, 2000, has found that your laboratory meets the on-site assessment requirements. No further action is required on your part, at this time, with regard to the on-site assessment phase of the evaluation of your laboratory.

If you have any questions, please call Thomas R. Davis at (301) 975-6499, or Hazel M. Richmond at (301) 975-3024.

Sincerely,

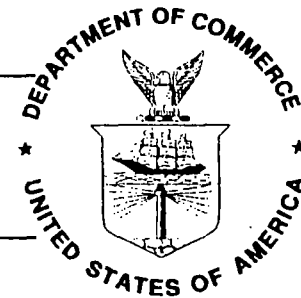
David F. Alderman, Chief
Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology



ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation



PACIFIC RIM ENVIRONMENTAL, INC.
TUKWILA, WA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

March 31, 2003

Effective through

David F. Alderman

For the National Institute of Standards and Technology
NVLAP Lab Code: 101631-0

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation



Page: 1 of 1

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101631-0

PACIFIC RIM ENVIRONMENTAL, INC.

6510 Southcenter Boulevard

Tukwila, WA 98188

Mr. William F. Golloway

Phone: 206-244-8965 Fax: 206-244-9096

NVLAP Code

Designation

18/A01

EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk
Insulation Samples

March 31, 2003

David F. Alderman

Effective through

For the National Institute of Standards and Technology

INSURANCE / LICENSES

ACORD

TM.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)

NOV 8 02

PRODUCER
MICHAEL J. HALL & COMPANY
19578 10TH AVENUE N.E.
POULSBORO WA 98370
PHONE: (360)598-3700
FAX: (360) 598-3703

Agency Lic#: 91-1461089

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION
ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE
HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR
ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURED

PACIFIC RIM ENVIRONMENTAL, INC.
6510 SOUTHCENTER BLVD SUITE 4
TUKWILA WA 98188

INSURER A: GULF UNDERWRITERS INSURANCE COMPANY

INSURER B:

INSURER C:

INSURER D:

INSURER E:

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
	GENERAL LIABILITY	GU2837839	MAY 28 02	MAY 28 04	EACH OCCURRENCE \$ 5,000,000
<input checked="" type="checkbox"/>	COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000
<input type="checkbox"/>	CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				MED. EXP (Any One Person) \$ 5,000
<input type="checkbox"/>					PERSONAL & ADV INJURY \$ 5,000,000
<input type="checkbox"/>					GENERAL AGGREGATE \$ 5,000,000
<input type="checkbox"/>	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS-COMP/OP AGG. \$ 5,000,000
<input type="checkbox"/>	POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC				
<input type="checkbox"/>	AUTOMOBILE LIABILITY	GU2837839	MAY 28 02	MAY 28 04	COMBINED SINGLE LIMIT (Ea accident) \$ 5,000,000
<input type="checkbox"/>	ANY AUTO				BODILY INJURY (Per person) \$
<input type="checkbox"/>	ALL OWNED AUTOS				BODILY INJURY (Per accident) \$
<input type="checkbox"/>	SCHEDULED AUTOS				PROPERTY DAMAGE \$
<input checked="" type="checkbox"/>	HIRED AUTOS				
<input checked="" type="checkbox"/>	NON-OWNED AUTOS				
<input type="checkbox"/>					
<input type="checkbox"/>	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
<input type="checkbox"/>	ANY AUTO				OTHER THAN EA ACC \$
<input type="checkbox"/>					AUTO ONLY: AGG \$
<input type="checkbox"/>	EXCESS / UMBRELLA LIABILITY				EACH OCCURRENCE \$
<input type="checkbox"/>	OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE \$
<input type="checkbox"/>	DEDUCTIBLE				\$
<input type="checkbox"/>	RETENTION \$				\$
<input type="checkbox"/>	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WC STATU- TORY LIMITS OTHER
<input type="checkbox"/>	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT \$
<input type="checkbox"/>	If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE-EA EMPLOYEE \$
<input type="checkbox"/>					E.L. DISEASE-POLICY LIMIT \$
<input type="checkbox"/>	OTHER:	GU2837839	MAY 28 02	MAY 28 04	\$5,000,000 PER CLAIM
<input checked="" type="checkbox"/>	PROFESSIONAL LIABILITY				\$5,000,000 AGGREGATE
<input type="checkbox"/>	CLAIMS MADE FORM				RETRO DATE: 5/28/91

DESCRIPTION OF OPERATIONS/LOCATION/VEHICLES/EXCLUSIONS ADDED ENDORSEMENT/ SPECIAL PROVISIONS**CERTIFICATE HOLDER**ADDITIONAL INSURED; INSURER LETTER: **CANCELLATION****"FOR INFORMATION ONLY"**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, IT'S AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Matthew L. Copus

Attention:





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 and 02075 Respiratory Protection Plan

Respiratory Protection Program

Respirator Requirements

Permissible Practice:

- Employee exposure to airborne asbestos fibers shall be minimized as far as possible by approved engineering control measures and work practices.
- Appropriate respirators shall be provided by PAS at no cost to the employee.
- PAS shall ensure that appropriate respirators are being used at all times inside the regulated area.

Respirator Selection

1. Respirators shall be selected on the basis of all hazards to which the employee is exposed.
2. Selection of the appropriate respirator shall be determined by a competent person.
3. Table I of 29 CFR 1926.1101 shall be used as the minimum criteria in the selection of respirators due to the exposure to asbestos fibers.
4. PAS shall select and provide, at no cost to the employee, the appropriate respirator and shall ensure that the employee uses the respirator provided.
5. PAS shall provide a tight fitting powered, air-purifying respirator in lieu of a negative-pressure respirator specified in the table
6. In addition to the above selection criteria, PAS shall provide a full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a initial exposure assessment has not been produced.
7. Respirators shall be approved by NIOSH and MSHA.

Respiratory Protection for Asbestos Fibers

Table 1

Airborne concentrations of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10 x PEL) or otherwise as required independent of exposure pursuant to (h)(2)(iv)	Half-face air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 x PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters
Not in excess of 10 f/cc (100 x PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 x PEL)	Full facepiece supplied air respirator

Greater than 100 f/co (1,000 x PEL) or unknown concentration

operated in pressure demand mode,

Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Employee Training

All employees shall be trained by a competent person in the following:

1. proper use of the respirator
2. limitations of the proper time to put on and remove the respirator in the decontamination room
3. procedures for worker self-inspection of the respirator
4. procedures for cleaning the respirator
5. respirator type used
6. proper procedures for putting on and adjusting the respirator
7. proper way to perform the positive and negative fit test
8. special procedures when working in hazardous atmospheres such as the buddy system, life lines, and back-up respirator systems.

Use of Respirators

1. Respirators shall be assigned to individual employees for their use during the duration of the project.
2. Employees shall be required to wear their respirator at all times while inside a regulated area.
3. Employees who wear respirators shall be allowed to leave the regulated area to wash their faces or respirator face pieces whenever necessary to prevent skin irritation.
4. Respirator filters shall be discarded or sealed to prevent escape of trapped contamination when the respirator is cleaned during the decontamination procedures.
5. Respirator filters shall be replaced whenever there is an increase in breathing resistance, or when the filter causes the flow rate of PAPR's to fall below 4 liters per minute.

Fit Testing of Respirators

1. A competent person shall perform all fit test procedures.
2. 1/2 mask, negative pressure, air-purifying respirators shall be fit tested using procedures required by OSHA Regulation 1926.1101, Appendix "c", Qualitative/Quantitative Fit Test protocol.
3. Full-face negative pressure, air-purifying respirators shall be fit tested using procedures required by OSHA Regulation 1926.1101, Appendix UC, Qualitative/Quantitative Fit Test Protocol.
4. Even though not specifically required by OSHA regulations, all powered, air-purifying respirators may be fit tested with the motor off (negative pressure mode) using procedures required by OSHA's Regulation 1926.1101, Appendix "C",

Qualitative/Quantitative Fit Test Protocol.

5. Even though not required by OSHA regulations, all supplied air respirators with HEPA filtered egress provisions shall be fit tested with the air supply off using the emergency egress mode (negative pressure mode) procedures required by OSHA regulation 1926.1101, Appendix "C", Qualitative/Quantitative Fit Test Protocol.
6. All employees shall be fit tested before using their respirator at the beginning of each job.
7. Under no circumstances shall workers be allowed to wear a respirator if a proper face piece to face seal cannot be maintained due to:
 - a) missing teeth or absence of upper or lower dentures
 - b) excessive facial hair, sideburns, beards, mustaches
 - c) skull cap, sweat band, etc. which protrudes under the face piece
 - d) an obvious respiratory problem (labors with every breath).
8. Fit test procedures shall be repeated at a minimum of 12 month intervals, or immediately if the employee has a weight change of 20 pounds or more, significant facial scarring in the area of the facepiece seal, significant dental changes, reconstructive surgery or any other condition that may interfere with facepiece sealing.
9. Records of fit testing shall be maintained along with other recordkeeping requirements for thirty years. The following information shall be included with the records:
 - a) Date of fit test
 - b) Name, address and social security number of employee
 - c) Name of individual giving test and company name
 - d) Name, type, and size of respirator tested
 - e) Type of fit test performed
 - f) Results of fit test

Respirator Cleaning

1. Respirators shall be cleaned by the user after each use while showering.
2. Respirators shall be disinfected regularly.

Respirator Storage

1. PAS shall provide adequate storage space for respirators in the clean room.
2. Plastic bags shall be provided for employees to store the respirator after cleaning.
3. Storage space provided shall protect respirators from excessive sunlight, heat, cold, moisture, and damaging chemicals.

Respirator Inspection

1. Inspections shall be performed by a competent person at frequent random intervals.
2. Inspections shall be performed by the employee before and after each use.
3. During inspection, the following parts shall be checked:
 - a) Face seal (pliable and free from defects)
 - b) Valves (in place, pliable and free from defects)
 - c) Filter gaskets (in place if used)
 - d) Filters (free from defects, proper type and not cross threaded)
 - e) Straps (not frayed or overstretched)

Supplied air respirator systems shall be inspected daily by a competent person to

assure proper function.

Duties of the Competent Person

1. The competent person shall supervise, inspect and evaluate regularly the work conditions, work practices and employee exposure to hazardous conditions.
2. The competent person shall also assure that:
 - a) the protection measures used are adequate
 - b) the respirators are properly selected, used, cleaned and maintained
 - c) the respirator program is effective.
 - d) Inspections as required by OSHA 1926.20(b)(2) and OSHA 1226.1101(o)(i) A-L

Employee Assignment

1. An employee shall not be assigned to work within a regulated area until he/she has been examined by a physician (at the company's expense) who will determine if the employee is physically able to use his/her's assigned respirator.
2. The physician shall provide a statement indicating the employee's capabilities and limitations regarding the anticipated work and respiratory equipment.
3. The physician's statement shall be maintained in the project's records.

Equipment Approval

- All equipment shall be marked, approved or accepted in accordance with standards established by applicable authorities.
2. Respirators, respirator systems and filters shall be approved by NIOSH.

Use of 1/2 Mask, Negative Pressure, Air-Purifying Respirators

- In general, 1/2 mask, negative pressure, air-purifying respirators are not to be used in regulated areas. Whenever practical, PAPRs are to be used as the minimum level of respiratory protection.
2. 1/2 mask, negative pressure, air-purifying respirators can be used in work areas where the fiber concentration is not expected to exceed the action level (0.1 f/cc), because of the nature of the material or the nature of the work procedure. Examples of this are removal of non-friable asbestos containing materials and construction of the enclosure system where asbestos containing materials are not disturbed.
 3. 1/2 mask, negative pressure, air-purifying respirators can only be used in work areas where the fiber concentration is less than 1 fiber per cubic centimeter.
 4. A qualitative fit test must be used for this type of respirator and The test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
 5. 1/2 mask, negative pressure, air-purifying respirators must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the
 - b) Check the intake and exhaust valves for distortion. Faulty valves must
 - c) Check the head bands. If they are severely over stretched, frayed, or replace them.

- e) Inspect the filter element to ensure it is screwed properly to the face piece
- f) Inspect the filter element for cracks or defects.
- 6. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the ears; now position the respirator on the face and tighten the straps. This is done by first grasping the loose ends of the lower straps and pulling them to the rear; then repeat the process for the top straps.
- 7. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a "zip-lock" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals.
- 8. When leaving the work area the respirator must be thoroughly cleaned. Filters must be discarded unless they can be sealed and cleaned.

Use of Full Face Piece, Negative Pressure, Air-Purifying Respirator

In general, full face piece, negative pressure, air-purifying respirators are not to be used in regulated areas. Whenever practical, PAPRs are to be used as the minimum level of respiratory protection.

- 2. Full face piece, negative pressure, air-purifying respirators can be used in work areas where the fiber concentrations are not expected to exceed 5 fibers per cubic centimeters because of the nature of the material or the nature of the work procedure. Examples of this are removal of non-friable regulated asbestos containing materials and construction of the enclosure system where regulated asbestos containing materials are not disturbed.
- 3. A quantitative fit test must be used for this type of respirator and the test must be conducted in accordance with OSHA 1926.1101, Appendix "C" A certified industrial hygienist shall perform the respirator fit testing procedure.
- 4. Full face piece, negative pressure, air-purifying respirators must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the face piece must be discarded.
 - b) Check the intake and exhaust valves for distortion. Faulty valves must be replaced.
 - c) Check the head bands, If they are severely overstretched, frayed, or mutilated, replace them.
 - d) If the face piece has filter gaskets, make sure that they are positioned properly.
 - e) Inspect the filter element to ensure it is screwed properly to the face piece
 - f) Inspect the filter element for cracks or defects.
 - g) Inspect the face shield to ensure it is sealed and is not leaking or scratched to the extent that it restricts vision.
- 5. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the

ears; now position the respirator on the face and tighten the straps. This is done by first grasping the loose ends of the lower straps and purling them to the rear; then repeat the process for the top straps.

6. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a TMziplocked" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals:
7. When leaving the work area the respirator must be thoroughly cleaned. Filters must be discarded unless they can be sealed and cleaned.

Use of Powered air-purifying respirators

1. Powered air-purifying respirators use a battery powered motor and fan to draw air through the filters. This eliminates the problem of inhalation resistance and allows the use of the filters with greater filtration ability. Also, the face piece is under positive pressure, reducing the chance of infiltration of particles due to improper fit or movement of the face piece during work activity.
2. Powered, air-purifying respirators (PAPRs) shall be considered the minimum level of respiratory protection for employees during the removal of friable asbestos containing materials.
3. Powered, air-purifying respirators (PAPRs) can only be used in work areas where the fiber concentration is less than 10 fibers per cubic centimeter.
4. Although not required by OSF-IA regulations, a qualitative fit test should be used for this type of respirator, because the respirator reverts to a negative pressure, air-purifying respirator if the battery fails. The test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
5. PAPRs must be inspected regularly. They should be inspected by the worker before each day's use and during cleaning. The competent person should inspect all respirators at least on a monthly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspect the inside sealing surface for cracks or distortions. If they are found, the face piece must be discarded.
 - b) Check the intake and exhaust valves for distortion. Faulty valves must be replaced.
 - c) Check the head bands. If they are severely overstretched, frayed, or mutilated, replace them.
 - d) If the face piece has filter gaskets, make sure that they are positioned properly.
 - e) Inspect the filter element to ensure it is screwed properly to the face piece.
 - f) Inspect the filter element for cracks or defects.
 - g) Check the flow rate of the unit following manufacturer's instructions. Tight fitting face pieces such as 1/2 face and full face pieces require a minimum of 4 liters of air per minute. Loose fitting face pieces, such as hood type face pieces, require a minimum of 6 liters of air per minute.
6. To don this type of respirator, first place the bottom strap of the head harness around the head and just below the ears. Next, place the top strap around the head and above the ears; now position the respirator on the face and tighten the straps. This is done by first

grasping the loose ends of the lower straps and pulling them to the rear then repeat the process for the top straps. Next, strap on the battery pack; connect the cord from the motor assembly to the battery pack and turn it on.

7. This type of respirator requires regular maintenance. It must be cleaned, disinfected and stored in a sanitary place. If this type respirator is issued for the exclusive use of one employee, it must be cleaned and disinfected after each day's use. If it is issued for use by more than one employee, it must be cleaned and disinfected after each use. After the respirator has been cleaned and disinfected, it should be placed in a "zip-locked" type plastic bag and stored in a location to protect it from dust, excessive sunlight, moisture, heat, extreme cold, and damaging chemicals.
8. When leaving the work area the respirator must be thoroughly cleaned. When possible the battery charging station should be placed in the equipment room. Battery packs should be disconnected from the motor assembly in the equipment room and connected to the charger. Workers will be breathing manually through the respirator filters as they enter the shower to decontaminate themselves and the rest of the respirator. Filters must be discarded unless they can be sealed and cleaned.

Use of Supplied Air Respirator Systems

1. Supplied air (sometimes called Class "C") respirator systems provide grade "D" breathing air from outside the work area to the workers. Air is transferred through the airlines by a compressor or air pump. Air coming from the compressor is purified by an air purification panel and then sent through the airline manifolds placed in the work area. Workers connect their individual air lines to the manifold. All supplied air respirator systems place the face piece under positive pressure reducing the chance of infiltration of particles due to improper fit, or movement of the face piece during work activity.
2. Supplied air respirator systems must include a provision for emergency escape in case of compressor or air pump failure. This may be accomplished by high pressure air bottles with an automatic switch over system, a lower pressure air tank reservoir, or HEPA filters mounted on the respirator.
3. Supplied air respirator systems in the pressure demand mode can only be used in work areas where the fiber concentration is less than 100.00 fibers per cubic centimeter. PAS employees will not be allowed to enter areas exceeding 100 fibers per cubic centimeters.
4. Although not required by 051-1A regulations, a qualitative fit test should be used for this type of respirator if the respirator reverts to a negative pressure, air-purifying respirator for emergency egress. The test must be conducted in accordance with OSHA 1926.1101, Appendix "C". The industrial hygienist hired to perform the air monitoring shall perform the respirator fit testing procedure.
5. Supplied air respirators must be inspected regularly. The face piece and related air hoses should be inspected by the worker before each day's use and during cleaning. In addition, the competent person should inspect all parts of the respirator system at least on a weekly schedule. A good inspection should include as a minimum the following procedures:
 - a) Inspection of all items for a negative pressure respirator
 - b) Check the flow rate of the unit following manufacturers instructions. Tight fitting face pieces such as 1/2 face and full face pieces require a minimum of 4 liters of air per minute. Loose fitting face pieces such as hood type face pieces require a minimum of 6 liters.
 - c) Evaluate the position of the compressor air intake. Assure the cleanest possible makeup air.

- d) Check the operation of the air purification panel.
- e) Check the operation of the carbon monoxide monitor and alarm.
- f) f) Check the quality of the air being pumped to the workers to assure grade 'V' breathing air.
- g) Check the condition of manifold and airline hoses.
- h) Check the air pressure at the manifold to assure proper operation of the pressure demand regulator.





422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 MSDS Sheets

MATERIAL SAFETY DATA SHEET

REVISION DATE: 02-27-2002

SUPERSEDES: 09-10-2001

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY INFORMATION

Foster Products Corporation
H.B. Fuller Company Subsidiary
2900 Granada Lane
Oakdale, MN 55128
Phone: 651-236-3700

Medical Emergency Phone Number (24 Hours): 1-888-853-1758
Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

PRODUCT INFORMATION

PRODUCT IDENTIFIER: 802288PM
PRODUCT NUMBER: FD3232
PRODUCT NAME: FOSTER 32-32
REGISTERED TRADE NAME: BRIDGING ENCAPSULANT®
TRADEMARK: BRIDGING ENCAPSULANT™
PRODUCT DESCRIPTION: Coating

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Unlisted ingredients are not 'hazardous' per the Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200) and/or are not found on the Canadian Workplace Hazardous Materials Information System ingredient disclosure list. See Section 8 for any additional exposure limit guidelines.

Chemical Name	CAS #	PERCENT	OSHA PEL
Aluminum hydroxide	21645-51-2	10 - 30	TWA (as Al) Soluble 2 MG/M3
Chlorinated paraffin	63449-39-8	5 - 10	Not established
Titanium dioxide	13463-67-7	5 - 10	TWA (Total dust) 10 MG/M3
Gypsum	13397-24-5	5 - 10	TWA (Total dust) 15 MG/M3 TWA (Respirable dust) 5 MG/M3
Talc	14807-96-6	1 - 5	TWA (Respirable dust) 2 MG/M3
Antimony trioxide	1309-64-4	0.1 - 1	TWA (as Sb) 0.5 MG/M3

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

MATERIAL SAFETY DATA SHEET

HMIS RATING: HEALTH -- 1 FLAMMABILITY -- 0 REACTIVITY -- 0

See SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for personal protective equipment recommendations.

POTENTIAL HEALTH EFFECTS BY ROUTE OF ENTRY

EYE: Can cause minor irritation, tearing and reddening.

SKIN: Can cause minor skin irritation, defatting, and dermatitis.

INHALATION: Can cause minor respiratory irritation. Inhalation of dusts produced during cutting, grinding or sanding of this product may cause irritation of the respiratory tract. Other possible symptoms include coughing or wheezing.

INGESTION: Ingestion is not an anticipated route of exposure.

LONG-TERM (CHRONIC) HEALTH EFFECTS

TARGET ORGAN(S): Lungs

REGULATED CARCINOGEN STATUS:

Unless noted below, this product does not contain regulated levels of NTP, IARC, ACGIH, or OSHA listed carcinogens.

Antimony trioxide

EXISTING HEALTH CONDITIONS AFFECTED BY EXPOSURE: Lung disease

SECTION 4: FIRST AID MEASURES

IF IN EYES: Use an eye wash to remove a chemical from your eye regardless of the level of hazard. Flush the affected eye for at least twenty minutes. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Seek medical advice after flushing.

IF ON SKIN: Wash with soap and water. Get medical attention if irritation develops or persists.

IF VAPORS INHALED: Remove to fresh air. Call a physician if symptoms persist.

IF SWALLOWED: No hazard in normal industrial use. Do not induce vomiting. Seek medical attention if symptoms develop. Provide medical care provider with this MSDS. Induce vomiting as a last measure. Induced vomiting may lead to aspiration of the material into the lungs potentially causing chemical pneumonitis that may be fatal.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT:	Non flammable
AUTOIGNITION TEMPERATURE:	Not established
LOWER EXPLOSIVE LIMIT (% in air):	Not established
UPPER EXPLOSIVE LIMIT (% in air):	Not established
EXTINGUISHING MEDIA:	Use water spray, foam, dry chemical or carbon dioxide.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	There is a possibility of pressure buildup in closed containers

MATERIAL SAFETY DATA SHEET

SPECIAL FIRE FIGHTING INSTRUCTIONS: when heated. Water spray may be used to cool the containers. Persons exposed to products of combustion should wear self-contained breathing apparatus and full protective equipment.

HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide, Carbon monoxide Chlorine containing gases
Sulfur containing gases

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPECIAL PROTECTION: No health effects expected from the cleanup of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this MSDS.

CLEAN-UP: Dike if necessary, contain spill with inert absorbent and transfer to containers for disposal. Keep spilled product out of sewers, watersheds, or water systems.

Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

SECTION 7: HANDLING AND STORAGE

Handling: Mildly irritating material. Avoid unnecessary exposure.

This product contains an ingredient that may release formaldehyde at heated cure temperatures.

Storage: Store in a cool, dry place.

Consult the Technical Data Sheet for specific storage instructions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Wear safety glasses when handling this product.

SKIN PROTECTION: Avoid skin contact by wearing chemically resistant gloves.

GLOVES: Nitrile

RESPIRATORY PROTECTION: Respiratory protection may be required to avoid overexposure when handling this product. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. Respirators should be selected by and used following requirements found in OSHA's respirator standard (29 CFR 1910.134).

VENTILATION: Use local exhaust ventilation or other engineering controls to minimize exposures.

EXPOSURE LIMITS:

Chemical Name	ACGIH EXPOSURE LIMITS	AIHA WEEL
Aluminum hydroxide	TWA (as Al) Soluble 2 MG/M3	Not established
Chlorinated paraffin	Not established	Not established
Titanium dioxide	TWA (Total dust) 10 MG/M3	Not established
Gypsum	TWA (Total dust) 10 MG/M3	Not established

MATERIAL SAFETY DATA SHEET

Talc	TWA (Respirable dust) 2 MG/M3	Not established
Antimony trioxide	TWA (as Sb) 0.5 MG/M3	Not established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid
COLOR: White
ODOR: Mild Sweet
ODOR THRESHOLD: Not established
WEIGHT PER GALLON (lbs.): 11.35
SPECIFIC GRAVITY: 1.36
SOLIDS (% by weight): 62.6

pH: Not established
BOILING POINT (deg. C): Not established
FREEZING/MELTING POINT (deg. C): Not established
VAPOR PRESSURE (mm Hg): Not established
VAPOR DENSITY: Not established
EVAPORATION RATE: Not established
OCTANOL/WATER COEFFICIENT: Not established

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions.
CHEMICAL INCOMPATIBILITY: Not established
HAZARDOUS POLYMERIZATION: Will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide Chlorine
containing gases Sulfur containing gases

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	LD50/LC50
Aluminum hydroxide	Not established
Chlorinated paraffin	Oral LD50 Rat >21500 ml/kg Dermal LD50 Rabbit > 10 ml/kg
Titanium dioxide	Not established
Gypsum	Not established
Talc	Not established
Antimony trioxide	Oral LD50 Rat >34600 mg/kg

TOXICOLOGY SUMMARY: No additional health information available.

MATERIAL SAFETY DATA SHEET

SECTION 12: ECOLOGICAL INFORMATION

OVERVIEW: No ecological information available

SECTION 13: DISPOSAL CONSIDERATIONS

To the best of our knowledge, this product does not meet the definition of hazardous waste under the U.S. EPA Hazardous Waste Regulations 40 CFR 261. Solidify and dispose of in an approved landfill. Consult state, local or provincial authorities for more restrictive requirements.

SECTION 14: TRANSPORTATION INFORMATION

Consult Bill of Lading for transportation information.

DOT: NOT REGULATED ,,,

SECTION 15: REGULATORY INFORMATION

INVENTORY STATUS

U.S. EPA TSCA: This product is in compliance with the Toxic Substances Control Act's
Inventory requirements.

If you need more information about the inventory status of this product call 651-236-5858.

FEDERAL REPORTING

EPA SARA Title III Section 313

Unless listed below, this product does not contain toxic chemical(s) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR part 72. EPA has advised that when a percentage range is listed the midpoint may be used to fulfill reporting obligations.

Chemical Name	CAS#	%
Polychlorinated alkanes	63449-39-8	5 - 10
Antimony compounds	1309-64-4	0.1 - 1

WHMIS STATUS: Unless listed below, this product is not controlled under the Canadian Workplace Hazardous Materials Information System.

D2A D1B

STATE REPORTING

This MSDS is not prepared for distribution in California.

SECTION 16: ADDITIONAL INFORMATION

This Material Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Workplace Hazardous Materials Information System (WHMIS).

MATERIAL SAFETY DATA SHEET

Prepared by: The Global Regulatory Department
Phone: 651-236-5842

The information and recommendations set forth herein are believed to be accurate. Because some of the information is derived from information provided to Foster Products Corporation from its suppliers, and because Foster Products Corporation has no control over the conditions of handling and use, Foster Products Corporation makes no warranty, expressed or implied, regarding the accuracy of the data or the results to be obtained from the use thereof. The information is supplied solely for your information and consideration, and Foster Products Corporation assumes no responsibility for use or reliance thereon. It is the responsibility of the user of Foster Products Corporation products to comply with all applicable federal, state and local laws and regulations.

MATERIAL SAFETY DATA SHEET

REVISION DATE: 03-09-2000

SUPERSEDES: 04-19-1998

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY INFORMATION

Foster Products Corporation
H.B. Fuller Company Subsidiary
2900 Granada Lane
Oakdale, MN 55128
Phone: 651-236-3785

Medical Emergency Phone Number (24 Hours): 1-888-853-1758
Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

PRODUCT INFORMATION

PRODUCT IDENTIFIER: FD3260
PRODUCT NUMBER: FD3260
PRODUCT NAME: FOSTER 32-60
TRADEMARK: ASBESTOS REMOVAL ENCAPSULANT™
PRODUCT DESCRIPTION: Lockdown

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Unlisted ingredients are not 'hazardous' per the Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1910.1200) and/or are not found on the Canadian Workplace Hazardous Materials Information System ingredient disclosure list. See Section 8 for any additional exposure limit guidelines.

Chemical Name	CAS #	PERCENT	OSHA PEL
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SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS RATING: HEALTH -- 0 FLAMMABILITY -- 0 REACTIVITY -- 0

See SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for personal protective equipment recommendations.

POTENTIAL HEALTH EFFECTS BY ROUTE OF ENTRY

EYE: No hazard in normal industrial use.

SKIN: No hazard in normal industrial use.

INHALATION: No hazard in normal industrial use.

INGESTION: Ingestion is not an anticipated route of exposure.

LONG-TERM (CHRONIC) HEALTH EFFECTS

MATERIAL SAFETY DATA SHEET

TARGET ORGAN(S): No organs known to be damaged from exposure to this product.

REGULATED CARCINOGEN STATUS:

Unless noted below, this product does not contain regulated levels of NTP, IARC, ACGIH, or OSHA listed carcinogens.

EXISTING HEALTH CONDITIONS AFFECTED BY EXPOSURE: No medical conditions affected by exposure.

SECTION 4: FIRST AID MEASURES

IF IN EYES: None expected to be needed, however, use an eye wash to remove a chemical from your eye regardless of the level of hazard.

IF ON SKIN: Wash with soap and water.

IF VAPORS INHALED: This material does not present a hazard if inhaled. Remove individual to fresh air after an airborne exposure if any symptoms develop, as a precautionary measure.

IF SWALLOWED: No hazard in normal industrial use. Do not induce vomiting. Seek medical attention if symptoms develop. Provide medical care provider with this MSDS. Induce vomiting as a last measure. Induced vomiting may lead to aspiration of the material into the lungs potentially causing chemical pneumonitis that may be fatal.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: Non flammable

AUTOIGNITION TEMPERATURE: Not established

LOWER EXPLOSIVE LIMIT (% in air): Not established

UPPER EXPLOSIVE LIMIT (% in air): Not established

EXTINGUISHING MEDIA: Use water spray, foam, dry chemical or carbon dioxide.

UNUSUAL FIRE AND EXPLOSION HAZARDS: There is a possibility of pressure buildup in closed containers when heated. Water spray may be used to cool the containers.

SPECIAL FIRE FIGHTING INSTRUCTIONS: Persons exposed to products of combustion should wear self-contained breathing apparatus and full protective equipment.

HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide, Carbon monoxide

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPECIAL PROTECTION: No adverse health affects expected from the clean-up of spilled material. Follow personal protective equipment recommendations found in Section 8 of this MSDS.

CLEAN-UP: Dike if necessary, contain spill with inert absorbent and transfer to containers for disposal. Keep spilled product out of sewers, watersheds, or water systems.

Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300

SECTION 7: HANDLING AND STORAGE

Handling: No special handling instructions due to toxicity.

This product contains an ingredient that may release formaldehyde at heated cure temperatures.

Storage: Store in a cool, dry place.

MATERIAL SAFETY DATA SHEET

Consult the Technical Data Sheet for specific storage instructions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: No special requirements under normal industrial use.

SKIN PROTECTION: Not normally considered a skin hazard. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

GLOVES: Not normally required. Use nitrile gloves if conditions warrant.

RESPIRATORY PROTECTION: No respiratory protection required under normal conditions of use. Respirators should be selected by and used following requirements found in OSHA's respirator standard (29 CFR 1910.134).

VENTILATION: No exposure limits exist for the constituents of this product. No engineering controls are likely to be required to maintain operator comfort under normal conditions of use.

EXPOSURE LIMITS:

Chemical Name	ACGIH EXPOSURE LIMITS	AIHA WEEL
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Blue

ODOR: Mild Sweet

ODOR THRESHOLD: Not established

WEIGHT PER GALLON (lbs.): 8.4

SPECIFIC GRAVITY: 1.01

SOLIDS (% by weight): 7.5

pH: 9.3

BOILING POINT (deg. C): Not established

FREEZING/MELTING POINT (deg. C): Not established

VAPOR PRESSURE (mm Hg): Not established

VAPOR DENSITY: Not established

EVAPORATION RATE: Not established

OCTANOL/WATER COEFFICIENT: Not established

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions.

CHEMICAL INCOMPATIBILITY: Not established

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	LD50/LC50
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TOXICOLOGY SUMMARY: No additional health information available.

SECTION 12: ECOLOGICAL INFORMATION

OVERVIEW: No ecological information available

MATERIAL SAFETY DATA SHEET

SECTION 13: DISPOSAL CONSIDERATIONS

To the best of our knowledge, this product does not meet the definition of hazardous waste under the U.S. EPA Hazardous Waste Regulations 40 CFR 261. Solidify and dispose of in an approved landfill. Consult state, local or provincial authorities for more restrictive requirements.

SECTION 14: TRANSPORTATION INFORMATION

Consult Bill of Lading for transportation information.

SECTION 15: REGULATORY INFORMATION

INVENTORY STATUS

U.S. EPA TSCA: This product is in compliance with the Toxic Substances Control Act's Inventory requirements.

If you need more information about the inventory status of this product call 651-236-5858.

TSCA Section 12(b) - Export Notice Requirements

This product contains a chemical substance that is currently on the EPA's Section 12(b) Export List. Contact the company Global Regulatory Group at 651/236-5858 for the identity of the Section 12(b) chemical(s).

FEDERAL REPORTING

EPA SARA Title III Section 313

Unless listed below, this product does not contain toxic chemical(s) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR part 72. EPA has advised that when a percentage range is listed the midpoint may be used to fulfill reporting obligations.

Chemical Name	CAS#	%
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WHMIS STATUS: Unless listed below, this product is not controlled under the Canadian Workplace Hazardous Materials Information System.

STATE REPORTING

This MSDS is not prepared for distribution in California.

SECTION 16: ADDITIONAL INFORMATION

This Material Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Workplace Hazardous Materials Information System (WHMIS).

Prepared by: The Global Regulatory Department
Phone: 651-236-5842

The information and recommendations set forth herein are believed to be accurate. Because some of the information is derived from information provided to Foster Products Corporation from its suppliers, and because Foster Products

MATERIAL SAFETY DATA SHEET

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MATERIAL SAFETY DATA SHEET

IDENTITY: (As used on label and list)

Polyolefin (CH₂ – CH₂)_n

NOTE: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

SECTION I

Manufacturer's Name:

Tyco Plastics

Emergency Phone Number:

(952) 469-8717

Address (number, street, city, state, & zip)

8235 220th Street West

Telephone Number for Information:

(800) 328-4080

Lakeville, MN 55044

Date Prepared: 1/29/02

Signature of Preparer: (optional)

SECTION II – HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

Hazardous Components (Specific Chemical Identity)

OSHA PEL

ACGIH TLV

Other Limits

%(optional)

Polyethylene is not considered a hazardous material.

Chemical Name: Polyethylene Film

Trade Name and Synonyms: Metallocene

StarVac 60

StarTex Film

TuffSkin-45 (TS-45)

ST-30

TuffSkin-50 (TS-50)

ST-50

SECTION III – PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point

N/A

Specific Gravity
(H₂O = 1)

0.91-0.97

Vapor Pressure (mm Hg.)

N/A

Melting Point

350-400° F / 175-210° C

Vapor Density (AIR=1)

N/A

Evaporation Rate
(Butyl Acetate =1)

Nil

Solubility in Water: Nil

Appearance and Odor: Film solid with negligible hydrocarbon odor.

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method used)

353 ° + 12 ° C – ASTM D-1929

Flammable Limits

N/A

LEL

UEL

Extinguishing Modes: Water, fog, CO₂ foam – dry chemical

Special Fire Fighting Procedures: Nothing special

Unusual Fire and Explosion Hazards: Nothing unusual

SECTION V – REACTIVITY DATA

Stability	Unstable		Conditions to Avoid: Temperatures greater than 450° F
	Stable	X	At 360° F

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts: CO, Acrolein, hydrocarbons, and oxidation products are produced at high temperatures.

Hazardous Polymerization	May Occur		Conditions to Avoid:
	Will Not Occur	X	

SECTION VI – HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation? No	Skin? Yes	Ingestion? Yes
Health Hazards (Acute and Chronic) Solid or dust could cause eye irritation. Non-irritating to Skin. Single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Single dose oral toxicity very low. Vapors unlikely. Dust not hazardous.			
Carcinogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated? No

Signs and Symptoms of Exposure: No immediate harmful effects.

Medical Conditions Generally Aggravated by Exposure: None known.

Emergency and First Aid Procedures: Eyes: Irrigate immediately with water for 5 minutes.

Skin: Wash off. Ingestion or inhalation: No adverse effects anticipated.

SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: May be a slipping hazard.

Waste Disposal Method: Bury in landfill or burn in an adequate incinerator in accordance with applicable local, state, and federal regulations.

Precautions to be Taken in Handling and Storing: None established

Other Precautions: None

SECTION VIII – CONTROL MEASURES

Respiratory Protection: (specify type) None should be needed. Good general ventilation adequate.

Ventilation	Local Exhaust: N/A	Special: N/A
	Mechanical: (General) N/A	Other: N/A

Protective Gloves: None required Eye Protection: Use safety glasses.

Other Protective Clothing or Equipment: None required

Work / Hygienic Practices: Wash hands after handling and before eating.



EFFECTIVE MAY 7, 1998

Dear Customer:

The following information is supplied in response to your request for a Material Safety Data Sheet (MSDS) on **GLOVEBAGS** and **POLYETHYLENE FILM**.

The Department of Labor, Occupational Safety and Health Administration required under 29 CFR 1910.1200, Hazard Communication Standard, that manufacturers assess and inform customers as to the hazards relating to chemicals in their products.

The item which you have requested an MSDS on is an "article" as defined in Section (C) of the CFR. Further, these articles do not release or otherwise result in exposure to a hazardous chemical under the conditions of your intended use. And, as stated in Section (B), Subsection (5), the Hazard Communication Standard does not apply to such articles. Therefore, an MSDS is not required.

Should you require further information, please feel free to contact me at 1-800-635-1551, Ext. 104. Thank you for your interest in Grayling products.

Sincerely,

Randy R. Sullinger
Director of Sales & Marketing

//d

Asbestos - Containing Pipe**Insulation Removal****Grayling Industries Glovebag Material / Glove Bag Specifications**

0.1

The Contractor, the Contractor's designated onsite "competent person", supervisor and Contractor's IH shall meet with the Contracting Officer prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's Asbestos Hazard Abatement Plan. SHP and APP will be enforced as if an addition to the specification. Any changes required in the specification as a result of the Asbestos Hazard Abatement Plan shall be identified specifically in the plan to allow for free discussion and acceptance by the Contracting Officer prior to the start of work.

0.11

Product Glovebags

0.12

Description Portable, sealed, polyethylene, disposable, work chamber that provides a barrier from asbestos fiber release created by work on pipes, ducts, beams, and vessels.

0.13

Specifications Glovebags must conform to current OSHA construction and performance requirements published in the August 10, 1994 Federal Register under 29 CFR parts 1910 and 1926:

Section I**1.0 Film Requirements**

<u>Property</u>	<u>ASTM</u>	<u>Typical Values</u>
1.1 Caliper		6 mil
1.2 Dart Impact	D-1709	410 grams
1.3 Tensile Yield	D-822	1168/1227 psi*
1.4 Ultimate Tensile	D-822	3313/3326 psi*
1.5 Elongation	D-822	622/683 %
1.6 Gloss		75
1.7 Haze		6.5

*MD/TD

Section II

2.0 Glove Requirements:

- 2.1 •Gloves must be attached with the exclusive Grayling FiberGuard GloveSleeve which is hot glued to ensure an airtight seal making them impermeable to hazardous fibers (hot glue method vs sewn).
- 2.2 •Glovebags must have two glove sleeve assemblies that are appropriately positioned for the diameter of pipe to be abated. The diameter of sleeve attachment to the glovebag should be 9 inches minimum and the length of the sleeve should be 28 inches minimum.
- 2.3 •Gloves must be made of 20 mil, heavy duty, extra large, flock lined, impermeable latex.

Section III

3.0 Glovebag Construction Requirements:

- 3.1 •Glovebags must have side seals that end in a fitted collar to assure an airtight attachment without creating "bunching" in the bag.
- 3.2 •Glovebags must have pre-cut tops to eliminate measuring and cutting prior to and during abatement.
- 3.3 •Glovebags must have seamless bottoms to allow excessive debris to collect at the bottom of the bag without the risk of bursting.
- 3.4 •Glovebags must have well positioned tool pouch.
- 3.5 •Glovebags must have entry ports to allow safe, fiber-tight attachment of the HEPA vacuum and wetting /encapsulant wand (N/A on model 4460 & 2230).

Section IV

4.0 Design Requirements Per Job

Glovebags must be the proper design for the specific abatement application (horizontal, vertical, over-sized, valve, elbow, etc.).

Extended Run

- 4.10 4460 EXT Encloses pipe insulation diameters up to 8" and contains 6.3' to 91' of horizontal pipe.
- 4.11 5460 EXT Encloses pipe insulation diameters up to 10" and contains 8' to 112' of horizontal pipe.
- 4.12 6072 EXT Encloses pipe insulation diameters up to 14" and contains 8.5' to 100' of horizontal pipe.
- 4.13 6684 - 2 EXT Encloses pipe insulation diameters up to 18" and contains 9' to 82' of horizontal pipe.

Short Pipe

- 4.20 4460 Encloses pipe insulation diameters up to 8" and contains a 2.7' of horizontal pipe.
- 4.21 5460 Encloses pipe insulation diameter up to 10" and contains a 3.5' of horizontal pipe.
- 4.22 6072 Encloses pipe insulation diameter up to 14" and contains a 3.5' of horizontal pipe.
- 4.23 6684-2 Encloses pipe insulation diameter up to 18" and contains a 3.5' of horizontal pipe.
- 4.24 72120-2 Encloses pipe insulation diameter up to 30" and contains a 3.5' of horizontal pipe.

Vertical Pipe

- 4.30 V10 Encloses pipe insulation diameter up to 10" and contains a 3.5' of vertical pipe.
- 4.31 V24 Encloses pipe insulation diameter up to 24" and contains a 3.5' of vertical pipe.

Special Applications

- 4.40 2230 Encloses valve and pipe insulation diameters up to 6" and contains a .8' work area.
- 4.41 GSV 12 Vertical glovesheet for floor and ceiling (also ducts and beam) applications. Flat glovesheet dimensions are 8' x 15'. Encloses insulation diameters up to 12" and contains 12' of vertical work area.
- 4.42 GSH 620-8-3 Horizontal ducts, beams and pipe. Flat glovesheet dimensions are 20' x 12', folded dimensions are 20' x 6' which encloses duct, beam and pipe insulation diameters up to 30" and can contain a 18' of horizontal work area.
- 4.43 GSH 1220-14-4 Large horizontal ducts, beams, pipes and boilers. Flat glovesheet dimensions are 20' x 24', folded dimensions are 20' x 12' which encloses insulation diameters up to 72" and can contain an 18' horizontal work area.

INTERNATIONAL
ENVIROGUARD
SYSTEMS, INC.

8201 Eastpoint Dr. #500 ■ Dallas, TX 75227
214-388-4012 ■ Fax: 214-388-5839
1-800-345-5972

Material Safety Data Sheet

A. PROPERITY IDENTTTY .

Properties Identification Name : Polypropylene Nonwoven Fabric
Common Name (Used On Label) 100% Nonwoven Disposable Polypropylene Fabric
Chemical Names : Polypropylene Chemical Family : Olefins
Chemical Formula : (- CH₂ - CH - CH₂)_n

B. HAZARDOUS INGREDIENTS

Principal Message : As interpreting the OSHA (Occupational Safety and Health Administration)
Hazard Communication Standard. Polypropylene nonwoven fabric is not a hazardous material . According
to the Code of Federal Regulations, Title 29, Chapter XVII, Part 1910. Subpart 2, Paragraph (b) (5),
the OSHA Hazard Communications Program does not apply to " (IV) Articles ". Nonwoven fabric exhibits
performance parameters which meet all of the requirements as specified in the definition of an article.
Therefore , the Hazard Communication Program does not apply to nonwoven fabric as an article.

C. PHYSICAL & CHEMICAL CHARACTERISTICS

Specific Gravity (H₂O) : 0.88 - 0.92 . Percent Volatile By Volume : < 0.4
Appearance and Odor : Point bonded nonwoven fabric, white and various color. No odor
Flash Point : above 650 F Auto Ignition Temperature Greater than : 9700 F
Flammable Limits In Air % by Volume : Low. N/A Upper. N/A
Extinguish Media : Agents approved for class A fires
Special Fire Fighting Procedure : Standard procedures for class A fires. Use water spray to cool
fire surface. Protect personal with usual precautions including use of self-contained breathing for smoke
and oxygen depletion.

INTERNATIONAL
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8201 Eastpoint Dr. #500 ■ Dallas, TX 75227
214-388-4012 ■ Fax: 214-388-5839
1-800-345-5972

Material Safety Data Sheet

D. PHYSICAL HAZARDOUS

Stability : Unstable ☐ Conditions
Stable ☐ to avoid

Incompatibility (Materials to avoid) : Heat, Strong oxidizers, acids and caustics

Hazardous Decomposition Products : Carbon Monoxide, carbon dioxide.

E. HEALTH HAZARDS

Threshold Limit Value : None Established Chronic over Exposure : None

Medical Conditions Generally Aggravated By Exposure : None

F. SPECIAL PROTECTION INFORMATION

Respiratory Protection Special Type : None Required

Protective Gloves : No Required

Other Protective Clothing or Equipment : None Required

Eye Protection : safety glasses should be worn when performing any industrial operation.

G. SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in handling & Storage: Store nonwoven fabric in a warehouse equipped with a sprinkler system. Do not store near flame, heat or strong oxidants, such as hot or concentrated nitric acid or fuming sulfuric acid to name a few.

Steps to be taken in case material is released or spilled : If material is not contaminated return to proper package for use. If material is contaminated, Place in proper container for disposal.

Waste Disposal Methods : Sweep up waste fabric and recycle, incinerate or landfill in conformity to local disposal regulations.

Important : The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damage incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

INTERNATIONAL
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SYSTEMS, INC.

8201 Eastpoint Dr. #500 ■ Dallas, TX 75227
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Material Safety Data Sheet

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performance parameters which meet all of the requirements as specified in the definition of an article.
Therefore , the Hazard Communication Program does not apply to nonwoven fabric as an article.

C. PHYSICAL & CHEMICAL CHARACTERISTICS

Specific Gravity (H₂O) : 0.88 - 0.92 . Percent Volatile By Volume : < 0.4
Appearance and Odor : Point bonded nonwoven fabric, white and various color. No odor
Flash Point : above 650 F Auto Ignition Temperature Greater than : 9700 F
Flammable Limits In Air % by Volume : Low. N/A Upper. N/A
Extinguish Media : Agents approved for class A fires
Special Fire Fighting Procedure : Standard procedures for class A fires, Use water spray to cool
fire surface, Protect personal with usual precautions including use of self-contained breathing for smoke
and oxygen depletion.

INTERNATIONAL
ENVIROGUARD
SYSTEMS, INC.

8201 Eastpoint Dr. #500 ■ Dallas, TX 75227
214-388-4012 ■ Fax: 214-388-5839
1-800-345-5972

Material Safety Data Sheet

D. PHYSICAL HAZARDOUS

Stability : Unstable ☐ Conditions
Stable ☐ to avoid

Incompatibility (Materials to avoid) : Heat, Strong oxidizers, acids and caustics

Hazardous Decomposition Products : Carbon Monoxide, carbon dioxide.

E. HEALTH HAZARDS

Threshold Limit Value : None Established Chronic over Exposure : None

Medical Conditions Generally Aggravated By Exposure : None

F. SPECIAL PROTECTION INFORMATION

Respiratory Protection Special Type : None Required

Protective Gloves : No Required

Other Protective Clothing or Equipment : None Required

Eye Protection : safety glasses should be worn when performing any industrial operation.

G. SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in handling & Storage: Store nonwoven fabric in a warehouse equipped with a sprinkler system. Do not store near flame, heat or strong oxidants, such as hot or concentrated nitric acid or fuming sulfuric acid to name a few.

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Waste Disposal Methods : Sweep up waste fabric and recycle, incinerate or landfill in conformity to local disposal regulations.

Important : The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damage incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

tyco

*Plastics &
Adhesives*

**Tyco
Adhesives**

Tyco Adhesives
1400 Providence Highway
Norwood, MA 02062 USA

TO WHOM IT MAY CONCERN:

We have received your request for a Material Safety Data Sheet (MSDS) for the following Tyco Adhesives product:

Nashua® 398

The product that you purchase from Tyco Adhesives is not considered a hazardous substance under OSHA's Hazard Communication Standard (29 CFR 1910.1200, as amended on August 24, 1987). To be considered a hazardous substance (requiring an MSDS), a product must have shown statistically significant evidence, based on at least one study conducted in accordance with established principles, that acute or chronic health effects may occur in exposed employees, and/or presents an otherwise significant health hazard.

Your concern for safety is appreciated, and if you still have questions about safety aspects of this product, please let us know at Tyco Adhesives customer service and we will place you in contact with the appropriate Tyco Adhesives specialist. Our customer service number is 1-800-343-7875.

Sincerely,

Tyco Adhesives Research & Development

NASHUA 398



I N D U S T R I A L T A P E S

PRODUCT CERTIFICATION

Nashua® 398

PRODUCT DESCRIPTION

Backing/Carrier:

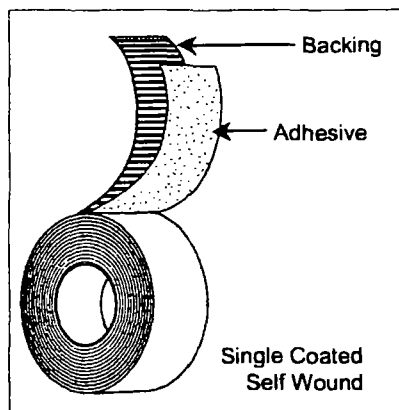
Polyethylene coated cloth

Adhesive:

Rubber

CONSTRUCTION

SINGLE COATED SELF WOUND



Certification

Underwriters Labs
Complies With UL 723

UNDERWRITERS LABS

U.L. 723 - Test For Surface Burning Characteristics Of Building Materials

Scope: This method of test for surface burning characteristics of building materials is applicable to any type of building materials that, by its own structural quality or the manner in which it is applied, is capable of supporting itself in a position or may be supported in the test furnace to a thickness comparable to its recommended use.

The purpose of the test is to determine the comparative burning characteristics of the material under test by evaluating the spread of flame over its surface and the density of smoke developed when exposed to a test fire, and thus establish a basis on which surface burning characteristics of different materials may be compared, without specific considerations of all end-use parameters that might affect the surface burning characteristics.

This method of test is intended to register performance during the period of exposure, and not to determine suitability for use after the test exposure.

USA

1400 Providence Highway
Norwood, MA 02062
1-800-343-7875
FAX: 1-800-328-4822
www.tycoadhesives.com

ASIA

26 Ang Mo Kio
#04-01
Singapore 56907
65 4847500
FAX: 65 4820300

EUROPE

h. Van Veldekesingel 150/29
B-3500 Hasselt Belgium
32-11-870-850
FAX: 32-11-870-851

LATIN AMERICA

9801 Westheimer, Suite 302
Houston, TX 77042
713-278-6922
FAX: 713-278-6923

Tyco
Adhesives

MATERIAL SAFETY DATA SHEET

This MSDS complies with OSHA'S Hazard Communication Standard 29 CFR 1910.1200 and OSHA Form 174

IDENTITY AND MANUFACTURER'S INFORMATION

NFPA Rating: Health-2; Flammability-3; Reactivity-0; Special-0 Manufacturer's Name: AMREP, INC. Address: 990 Industrial Park Drive Marietta, GA 30062		HMS Rating: Health-2; Flammability-3; Reactivity-0; Personal Protection-B DOT Hazard Classification: ORM-D Identity (trade name as used on label): MISTY HEAVY DUTY ADHESIVE SPRAY
Date Prepared: 2/2/00 Prepared By: ES/KD/IB Information Calls: (770)422-2071 EMERGENCY RESPONSE NUMBER: 1(800)255-3924		MSDS Number: 315 Revision: 9 NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS-CHEMICAL NAMES AND COMMON NAMES (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	CAS Number	SARA III LIST	OSHA PEL (ppm)	ACGIH TLV (ppm)	Carcinogen Ref. Source **
ACETONE	67-64-1	No	1000	750	d
HEXANE	110-54-3	Yes	500	50	d
ISOBUTANE / PROPANE BLEND	75-28-5	No	800	800	d
	74-98-6	No	1000	1000	d

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A	Specific Gravity (H₂O=1): Concentrate Only = 0.853
Vapor Pressure: PSIG @ 70°F (Aerosols): Max.80	Vapor Pressure (Non-Aerosols)(mm Hg and Temperature): N/A
Vapor Density (Air = 1): N/E	Evaporation Rate (= 1): N/E
Solubility in Water: Partial	Water Reactive: No
Appearance and Odor: Straw colored liquid with ketone solvent odor.	

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY as per USA FLAME PROJECTION TEST (aerosols) EXTREMELY FLAMMABLE		Auto Ignition Temperature N/E	Flammability Limits in Air by % in Volume: % LEL: N/E % UEL: N/E
FLASH POINT AND METHOD USED (non-aerosols): N/A		SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus. Use water fog to cool containers to prevent rupturing & exploding containers. Provide shielding for personnel.	
EXTINGUISHER MEDIA: Foam, dry chemical, carbon dioxide, water.			
Unusual Fire & Explosion Hazards: Do not expose aerosols to temperatures above 130°F or the container may rupture.			

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY [X] STABLE [] UNSTABLE	HAZARDOUS POLYMERIZATION [] WILL [X] WILL NOT OCCUR
Incompatibility (Mat. to avoid): Strong oxidizing agents.	Conditions to Avoid: Open flame, welding arcs, heat, sparks.
Hazardous Decomposition Products: Carbon dioxide, carbon monoxide.	

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: [X] INHALATION [] INGESTION [X] SKIN ABSORPTION [] EYE [] NOT HAZARDOUS	
ACUTE EFFECTS	
Inhalation: Excessive inhalation of vapors can cause nasal & respiratory irritation, dizziness, weakness, nausea, headache, possible unconsciousness or asphyxiation.	
Eye Contact: Irritation.	Skin Contact: Irritation due to defatting of skin.
Ingestion: Possible chemical pneumonitis if aspirated into lungs.	
CHRONIC EFFECTS: (Effects due to excessive exposure to the raw materials of this mixture) Excessive inhalation of hexane may cause nerve damage.	
Medical Conditions Generally Aggravated by Exposure: May aggravate existing eye, skin, or upper respiratory conditions.	

EMERGENCY FIRST AID PROCEDURES

Eye Contact: Flush with water for 15 minutes. If irritated, seek medical attention.	
Skin Contact: Wash with soap and water. If irritated, seek medical attention.	
Inhalation: Remove to fresh air. Resuscitate if necessary. Get medical attention.	
Ingestion: DO NOT INDUCE VOMITING. Drink two large glasses of water. Get immediate medical attention.	
SECTION 6 - CONTROL AND PROTECTIVE MEASURES	
Respiratory Protection (specify type): If vapor concentration exceeds TLV, use respirator approved by NIOSH in positive pressure mode.	
Protective Gloves: Neoprene.	Eye Protection: Safety glasses recommended.
Ventilation Requirements: Adequate ventilation to keep vapor concentration below TLV.	
Other Protective Clothing & Equipment: None	
Hygienic Work Practices: Wash with soap and water before handling food. Remove contaminated clothing.	

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken If Material Is Spilled Or Released: Absorb with suitable medium. Incinerate or landfill according to local, state or federal regulations. DO NOT FLUSH TO SEWER.
Waste Disposal Methods: Aerosol cans when vented to atmospheric pressure through normal use, pose no disposal hazard.
Precautions To Be Taken In Handling & Storage: Do not puncture or incinerate containers. Do not store at temperatures above 130°F.
Other Precautions &/or Special Hazards: KEEP OUT OF REACH OF CHILDREN. Avoid food contamination. Avoid breathing vapors. Remove ignition sources.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind.

** Chemical Listed as Carcinogen or Potential Carcinogen. [a] NTP [b] IARC Monograph [c] OSHA [d] Not Listed [e] Animal Data Only



422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

**Asbestos Survey for Reference prepared by Orion
Environmental**

Site Information - 300 Middle Waterway

This single story 4,600 square foot commercial structure was wood framed on masonry foundation. Estimated construction date was around the 1930's with the north wing being the older part of the construction. The only know renovation was the conversion from steam heat to electric baseboard heating. The interior finishes were comprised of wallboard, carpeting, various patterns of vinyl sheeting and vinyl tiles, slip sheeting, ceiling tiles, wood paneling, and fiberboard paneling. The exterior was noted with wood siding, window glazing and window caulking, and multiple-layered composition roll down roofing, three tab roofing, and built up roofing. No suspect interior wall or attic insulation was identified. All visible plumbing appeared to be originally insulated. Incandescent lighting was noted in addition to 42 fluorescent light fixtures throughout the structure.



Inspection Summary of Suspect Materials

This section discusses inspection findings for homogeneous suspect asbestos-containing materials sampled. In accordance with standardized guidelines for sampling, thirty-eight (38) non-homogeneous suspect asbestos-containing materials were identified and collected for analyses. Material identification and descriptions are as follows:

Material Designation	Material Identification	Material Description
VS 1	Vinyl Sheeting 1	Brown and Gray Base Color; Broken Rock Pattern; Gray Felt Backing; Associated Tan Colored Mastic
VS 2	Vinyl Sheeting 2	Gray Base Color; Gray Felt Backing; Associated Brown Colored Mastic
VS 3	Vinyl Sheeting 3	Brown and Tan Base Color; Square Pattern; Gray Felt Backing; Associated Tan Colored Mastic
VS 4	Vinyl Sheeting 4	Brown and White Base Color; Pebble Pattern; Gray Felt Backing; Associated Tan Colored Mastic
VT 1	Vinyl Tile 1	9" x 9" Cut; Dark Brown Base Color; Red and Whit Streak Pattern; Associated Dark Colored Mastic
VT 2	Vinyl Tile 2	Brown Base Color; Uncut; Burlap Backing; Associated Dark Colored Mastic
VT 3	Vinyl Tile 3	12" x 12" Cut; Cream Base Color; Associated Dark Colored Mastic
VT 4	Vinyl Tile 4	Cream Base Color; Uncut; Burlap Backing; Associated with Drafting Table

Suspect Material Table

*Exhibit One – 300 Middle Waterway
Summary of Suspect Materials*

Material Designation	Material Identification	Material Description
VT 5	Vinyl Tile 5	9" x 9" Cut; Green Base Color; Dark Green and Yellow Streak Pattern; Associated Dark Colored Mastic
VT 6	Vinyl Tile 6	9" x 9" Cut; Gray Base Color; Associated Dark Colored Mastic
SS 1	Slip Sheeting 1	Felt Material; Tar Impregnated; Black Color; Associated Mastic; Floor Associated
SS 2	Slip Sheeting 2	Felt Material; Tar Impregnated; Black Color; No Mastic Associated; Floor Associated
SS 3	Slip Sheeting 3	Felt Material; Blue Gray Base Color; Floor Associated
SS 4	Slip Sheeting 4	Felt Material; Tar Impregnated; Black Color; Attic Associated
SS 5	Slip Sheeting 5	Silver Paper Outer Lining; Black Mastic Interior; Wall Associated
SS 6	Slip Sheeting 6	Felt Material; Tar Impregnated; Black Outer Color; Light Inner Color; Siding Associated
MA 1	Mastic 1	Tan Base Color; Brittle; Thin Application; Associated with Carpeting
MA 2	Mastic 2	Dark Brown Base Color; Brittle; Thin to Medium Thickness Application; Associated with Cove Base
MA 3	Mastic 3	Brown Base Color; Brittle; Thin Application; Associated with Cove Base
MA 4	Mastic 4	Brown Base Color; Brittle; Thin Application; Associated with Green Laminate with Sink
MA 5	Mastic 5	Brown Base Color; Thick Application; Hard; Glue Dot Form; Associated with Ceiling Tile

Suspect Material Table (continued)

*Exhibit One – 300 Middle Waterway
Summary of Suspect Materials*

Material Designation	Material Identification	Material Description
MA 6	Mastic 6	Brown Base Color; Brittle; Thin Application; Associated with Wood Paneling
MA 7	Mastic 7	Tan Base Color; Brittle; Thin Application; Associated with Wood Paneling
Misc. 1	Miscellaneous 1	Leveling Compound; Off White Base Color; Thin Application; Even Consistency; Brittle;
Misc. 2	Miscellaneous 2	Fiber Board; Pressed Wood Base; White Outer Color; Tan Inner Color;
Misc. 3	Miscellaneous 3	Sink Undercoating; Black Base Color
CT 1	Ceiling Tile 1	1' x 1' Cut; White Outer Color; Tan Inner Color; Worm Gouge Pattern
CT 2	Ceiling Tile 2	1' x 1' Cut; White Outer Color, Tan Inner Color; Regular Hole Circular Pattern
CT 3	Ceiling Tile 3	1' x 2' Cut; White Outer Color; Brown Inner Color; Nailed Application
WB 1	Wallboard Assembly 1	Skim Coat Surfacing; Joint Compound and Wallboard
WB 2	Wallboard Assembly 2	Wallboard; Brown/Gray Paper Encasement; Nailed Application
WG 1	Window Glazing 1	Tan Base Color; Hard Form; Medium Thickness Application
CA 1	Caulking 1	White Base Color; Pliable; Thin Laced Application
TSI 1	Thermal System Insulation 1	Aircell Pipe Insulation; Gray; Corrugated
TSI 2	Thermal System Insulation 2	Pipe Fitting Insulation; White Base Color; Mud; Magnesium Based Dilution

Suspect Material Table (continued)

*Exhibit One - 300 Middle Waterway
Summary of Suspect Materials*

Material Designation	Material Identification	Material Description
RM 1	Roofing Material 1	Core Sample; Multiple Layered Matrix; Roll Down and Built Up
RM 2	Roofing Material 2	Core Sample; Multiple Layered Matrix; Felt and Composition Shingles
RM 3	Roofing Material 3	Core Sample; Multiple Layered Matrix; Built Up

Suspect Material Table (continued)

From the 38 types of non-homogeneous suspect materials, forty-two (42) bulk samples (with layers identified) were collected and analyzed for asbestos. During the survey, the inspector determined that no other visible or accessible suspect materials existed on the interior or exterior of this structure.

Inspection Summary of Presumed or Materials Found Positive

Upon completion of the field investigation, review of field notes, and review of laboratory data, the following suspect materials that were identified, homogenized, and analyzed were found to contain asbestos:

Vinyl Sheeting 2 (VS 2) – Gray Base Color; Gray Felt Backing; Associated Brown Colored Mastic

This friable material (friability noted in the felt backing) was analyzed by the laboratory as containing 45% Chrysotile asbestos fibers in the felt backing. The associated mastic for this matrix was non-detect for containing asbestos. One sample of the vinyl sheeting and one sample of the associated mastic were collected.

Underneath carpeting, this material was found as a second layer flooring in Room 1 underneath a layer of non-asbestos containing vinyl sheeting (VS 1). This material was adhered to a wood substrate. This material was not identified in any other location of the structure.

Overall, the condition of this material was in satisfactory condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – Low
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 160 square feet of the asbestos containing vinyl sheeting exists as noted. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Vinyl Sheeting 3 (VS 3) – Brown and Tan Base Color; Square Pattern; Gray Felt Backing; Associated Tan Colored Mastic

This friable material (friability noted in the felt backing) was analyzed by the laboratory as containing 25% Chrysotile asbestos fibers in the felt backing. The associated mastic for this matrix was non-detect for containing asbestos. One sample of the vinyl sheeting and one sample of the associated mastic were collected.

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

This material was found in the following locations:

- ◆ Room 2b – 20 Square Feet
- ◆ Room 7b – 15 Square Feet
- ◆ Room 6a – 15 Square Feet
- ◆ Bath 1 – 105 Square Feet

This material, adhered to a wood substrate, may exist under carpeting in any of the locations as noted. This material was also noted underneath vinyl sheeting in room 1 and existed as a top layer flooring in closets. This material was not identified in any other location of the structure.

Overall, the condition of this material was in satisfactory condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – Low
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 155 square feet of the asbestos containing vinyl sheeting exists in the locations mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Vinyl Tile 1 (VT 1) – 9" x 9" Cut; Dark Brown Base Color; Red and White Streak Pattern; Associated Dark Colored Mastic

These non-friable materials were analyzed by the laboratory as containing 7% Chrysotile asbestos fibers in the vinyl tile and 2% Chrysotile fiber in the associated mastic. One sample of the vinyl tile and one sample of the associated mastic were collected.

This material was found in the following locations:

- ◆ Room 2 – 520 Square Feet
- ◆ Hall 1 – 145 Square Feet
- ◆ Hall Bathroom – 30 Square Feet
- ◆ Hall 2 – 50 Square Feet

These materials are adhered to a non-asbestos containing vinyl tile (VT 2) and may exist under carpeting in any of the locations as noted. These materials were not identified in any other location of the structure.

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

Overall, the condition of this material was in fair condition with some loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as follows:

Vinyl Tile

- ◆ Air – High
- ◆ Vibration – Low
- ◆ Contact – High
- ◆ Water – Moderate

Mastic

- ◆ Air - Low
- ◆ Vibration - Low
- ◆ Contact - Low
- ◆ Water - Low

An estimated 745 square feet of this asbestos containing vinyl tile and associated mastic exists in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Vinyl Tile 3 (VT 3) – 12" x 12" Cut; Cream Base Color; Associated Dark Colored Mastic

This non-friable material was analyzed by the laboratory as containing 3% Chrysotile asbestos fibers in the associated mastic. The vinyl tile was non-detect for containing asbestos. One sample of the vinyl tile and one sample of the associated mastic were collected.

This material was found in the Men's Room adhered to a wood substrate. This material was not identified in any other location of the structure.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – Low
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 40 square feet of this asbestos containing mastic exists in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Vinyl Tile 5 (VT 5) – 9" x 9" Cut; Green Base Color; Dark Green and Yellow Streak Pattern; Associated Dark Colored Mastic

These non-friable materials were analyzed by the laboratory as containing 5% Chrysotile asbestos fibers in the vinyl tile and 3% Chrysotile fiber in the associated mastic. One sample of the vinyl tile and one sample of the associated mastic were collected.

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

These materials were found in the following locations:

- ◆ Room 6 – 250 Square Feet
- ◆ Room 6a – 12 Square Feet
- ◆ Room 7 – 270 Square Feet
- ◆ Room 7a – 24 Square Feet
- ◆ Room 8 – 490 Square Feet
- ◆ Room 8a – 24 Square Feet
- ◆ Room 8b – 15 Square Feet
- ◆ Room 9 – 230 Square Feet
- ◆ Room 9a – 20 Square Feet
- ◆ Hall 4 – 210 Square Feet
- ◆ Bath 1 – 105 Square Feet
- ◆ Room 10 – 325 Square Feet
- ◆ Room 10a – 24 Square Feet

These materials, adhered to a wood substrate, may exist under carpeting in any of the locations as noted. These materials were not identified in any other location of the structure.

Overall, the condition of this material was in fair condition with some loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as follows:

Vinyl Tile

- ◆ Air – High
- ◆ Vibration – Low
- ◆ Contact – High
- ◆ Water – Moderate

Mastic

- ◆ Air - Low
- ◆ Vibration - Low
- ◆ Contact - Low
- ◆ Water - Low

An estimated 2,000 square feet of this asbestos containing vinyl tile and associated mastic exists in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Vinyl Tile 6 (VT 6) – 9" x 9" Cut; Gray Base Color; Associated Dark Colored Mastic

These non-friable materials were analyzed by the laboratory as containing 5% Chrysotile asbestos fibers in the vinyl tile and 2% Chrysotile fibers in the associated mastic. One sample of the vinyl tile and one sample of the associated mastic were collected.

These materials were found along the west wall of Room 8:

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

These materials, adhered to a wood substrate in association and adjacent to VT 5 (reference VT 5 information). These materials were not identified in any other location of the structure.

Overall, the condition of this material was in fair condition with some loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as follows:

Vinyl Tile

- ◆ Air – High
- ◆ Vibration – Low
- ◆ Contact – High
- ◆ Water – Moderate

Mastic

- ◆ Air - Low
- ◆ Vibration - Low
- ◆ Contact - Low
- ◆ Water - Low

An estimated 10 square feet of this asbestos containing vinyl tile and associated mastic exists in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Mastic 2 (MA 2) – Dark Brown Base Color; Brittle; Thin to Medium Thickness Application; Associated with Cove Base

This non-friable material was analyzed by the laboratory as containing 5% Chrysotile asbestos fibers. One sample of this matrix was collected.

This material was found in the following locations:

- ◆ Room 2 – 30 LF
- ◆ Room 2b – 15 LF
- ◆ Hall 1 – 25 LF
- ◆ Men's Room – 22 LF
- ◆ Room 6 – 42 LF
- ◆ Room 6a – 11 LF
- ◆ Room 7 – 41 LF
- ◆ Room 7b – 12 LF
- ◆ Hall 3 – 50 LF
- ◆ Room 8 – 45 LF
- ◆ Room 9 – 50 LF
- ◆ Room 9a – 15 LF
- ◆ Hall 4 – 60 LF
- ◆ Bath 1 – 35 :LF
- ◆ Room 45 LF

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

This material adhered to wallboard, wood paneling, and plywood substrates were not located in any other location of the structure.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – Low
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 500 linear feet of this asbestos containing mastic exists in the locations mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Mastic 3 (MA 3) – Brown Base Color; Brittle; Thin Application; Associated with Cove Base

This non-friable material was analyzed by the laboratory as containing 5% Chrysotile asbestos fibers. One sample of this matrix was collected.

This material was found in Room 1 adhered to wallboard substrate. This material was not found in any other location of the structure.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – Low
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 85 linear feet of this asbestos containing mastic exists in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Ceiling Tile 1 (CT 1) – 1' x 1' Cut; White Outer Color; Tan Inner Color; Worm Gouge Pattern

Mastic 5 (MA 5) – Brown Base Color; Thick Application; Hard; Glue Dot Form; Associated with Ceiling Tile 1

The friable ceiling tile was analyzed by the laboratory as containing 4% Chrysotile asbestos fibers. The associated non-friable mastic, after being homogenized, was found to contain 2% Chrysotile asbestos fibers. One sample of the ceiling tile and two samples of the associated mastic were collected.

These materials were found in the following locations:

- ◆ Room 1 – 275 Square Feet
- ◆ Hall 3 – 145 Square Feet
- ◆ Room 7 – 270 Square Feet
- ◆ Room 6 – 250 Square Feet
- ◆ Room 8 – 490 Square Feet
- ◆ Room 9 – 230 Square Feet
- ◆ Hall 4 – 210 Square Feet
- ◆ Room 10 – 325 Square Feet
- ◆ Room 10a – 24 Square Feet

This specific ceiling tiles, adhered to wallboard substrate, was not identified in any other location of the structure. The associated mastic was found to be in association with other asbestos containing ceiling (reference ceiling tile 2).

Overall, the condition of the ceiling tile was in fair condition with some loss of cohesive properties and material integrity. The condition of the mastic was found satisfactory. Until demolition occurs, current potential disturbances of the ceiling tile and the mastic are as follows:

Ceiling Tile 1

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

Mastic 5

- ◆ Air (Low)
- ◆ Vibration - Moderate
- ◆ Contact – Low
- ◆ Water (High)

An estimated 2,220 square feet of these matrixes exist in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Ceiling Tile 2 (CT 2) – 1' x 1' Cut; White Outer Color; Tan Inner Color; Regular Hole Circular Pattern

Mastic 5 (MA 5) – Brown Base Color; Thick Application; Hard; Glue Dot Form; Associated with Ceiling Tile 2

The friable ceiling tile was analyzed by the laboratory as containing 4% Chrysotile asbestos fibers. The associated non-friable mastic, after being homogenized, was found to contain 2% Chrysotile asbestos fibers. One sample of the ceiling tile and two samples of the associated mastic were collected (reference MA 5 in association with Ceiling Tile 1)

These materials were found in the following locations:

- ◆ Room 2 – 490 Square Feet
- ◆ Hall 1 – 145 Square Feet
- ◆ Room 3 – 483 Square Feet
- ◆ Room 5 – 230 Square Feet

This specific ceiling tiles, adhered to wallboard substrate, was not identified in any other location of the structure. The associated mastic was found to be in association with other asbestos containing ceiling (reference ceiling tile 1).

Overall, the condition of the ceiling tile was in fair condition with some loss of cohesive properties and material integrity. The condition of the mastic was found satisfactory. Until demolition occurs, current potential disturbances of the ceiling tile and the mastic are as follows:

Ceiling Tile 2

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

Mastic 5

- ◆ Air (Low)
- ◆ Vibration - Moderate
- ◆ Contact – Low
- ◆ Water (High)

An estimated 1,350 square feet of these matrixes exist in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Ceiling Tile 3 (CT 3) – 1' x 2' Cut; White Outer Color; Brown Inner Color; Nailed Application

This friable material analyzed by the laboratory as containing 2% Chrysotile asbestos fibers. One sample of the ceiling tile was collected.

These materials were found in the following locations:

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

- ◆ Hall 2 – 48 Square Feet
- ◆ Hall Bathroom – 30 Square Feet
- ◆ Men's Room – 36 Square Feet
- ◆ Ladies Room – 36 Square Feet
- ◆ Room 2a – 24 Square Feet

This specific ceiling tile, nailed into ceiling joists, was not identified in any other location of the structure.

Overall, the condition of the ceiling tile was in fair condition with some loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as noted:

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

An estimated 175 square feet of these matrixes exist in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Miscellaneous 3 (Misc. 3) – Sink Undercoating, Black Base Color

This non-friable material was analyzed by the laboratory as containing 10% Chrysotile asbestos fibers. One sample of this matrix was collected.

This material was found as a bottom sink coating Room 8b. This material was not found in any other location of the structure.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – High
- ◆ Vibration – High
- ◆ Contact – High
- ◆ Water – High

An estimated one sink (bar size) containing this asbestos containing undercoating exists in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

Slip Sheeting 4 (SS 4) – Felt Material, Tar Impregnated; Black Color; Attic Associated

Slip Sheeting 6 (SS 6) – Felt Material, Tar Impregnated; Black Outer Color; Light Inner Color; Exterior Wall Associated

These non-friable materials were analyzed by the laboratory as with concentrations ranging between 3% to 5% Chrysotile asbestos fibers. One sample of each matrix was collected.

These materials were found throughout the attic space and underneath the exterior shiplap siding surrounding the building. These materials were not found in any other location of the structure. These material are not homogeneous to the floor associated slip sheeting.

Overall, the condition of these materials was good with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – High
- ◆ Vibration – Low
- ◆ Contact – Low
- ◆ Water – Low

An estimated 5,200 square feet of this asbestos containing slip sheeting exists in the locations mentioned. These materials will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Roofing Material 1 (RM 1) – Core Sample; Multiple Layered Matrix; Roll Down and Built Up

This non-friable multiple layered matrix was analyzed by the laboratory as containing 5% Chrysotile asbestos fibers within the middle layer. One core sample of this matrix was collected.

This matrix was found on the flat roof part of the North Wing.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – High
- ◆ Vibration – High
- ◆ Contact – High
- ◆ Water – High

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

An estimated 100 square feet of this asbestos containing core matrix exists in the location mentioned. Based on the location of the asbestos in the middle layer, it cannot be separated from the non-asbestos containing layers. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Roofing Material 2 (RM 2) – Core Sample; Multiple Layered Matrix; Felt and Composition Shingles

This non-friable multiple layered matrix was analyzed by the laboratory as containing asbestos fibers within the layers as follows:

- ◆ Felt (Top Layer) – No Asbestos Detected
- ◆ Composition (Second Layer) – 5% Chrysotile Fibers
- ◆ Felt (Third Layer) – 3% Chrysotile Fibers

One core sample of this matrix was collected. This matrix was the primary roof covering of the structure underneath cedar shake shingles.

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – High
- ◆ Vibration – High
- ◆ Contact – High
- ◆ Water – High

An estimated 4,500 square feet of this asbestos containing core matrix exists in the location mentioned. Based on the location of the asbestos in the second and third layer, it cannot be separated from the non-asbestos containing layer. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Roofing Material 3 (RM 3) – Core Sample; Multiple Layered Matrix; Built Up

This non-friable multiple layered matrix was analyzed by the laboratory as containing asbestos fibers within the layers as follows:

- ◆ Built Up (Top Layer) – 20% Chrysotile Fibers
- ◆ Built Up (Second Layer) – 35% Chrysotile Fibers
- ◆ Built Up (Third Layer) – No Asbestos Detected
- ◆ Built Up (Fourth Layer) – No Asbestos Detected

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

One core sample of this matrix was collected. This matrix was the primary roof covering of a salient building north of the main structure

Overall, the condition of this material was in good condition with cohesive properties and material integrity intact. Until demolition occurs, current potential disturbances are as follows:

- ◆ Air – High
- ◆ Vibration – High
- ◆ Contact – High
- ◆ Water – High

An estimated 4,500 square feet of this asbestos containing core matrix exists in the location mentioned. Based on the location of the asbestos in the first and second layer, it cannot be separated from the non-asbestos containing layers. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Thermal System Insulation 1 (TSI 1) – Aircell Pipe Insulation; Gray Wrap; Corrugated

This friable material was analyzed by the laboratory as containing concentration ranging between 25% and 35% Chrysotile asbestos fibers. Two samples of this matrix were collected.

This material was found through the crawl space area on domestic or steam water lines. This material was also found in the debris form on the soil. It was noted that this material may exist in penetrations into above flooring feeding into radiators that use to exist in the structure, as well as into the foundation.

Overall, the condition of this material was in poor condition with loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as noted:

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

An estimated 1,350 linear feet of visible material exists in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Exhibit One – 300 Middle Waterway
Summary of Materials Presumed or Materials Found Positive

Thermal System Insulation 2 (TSI 2) – Pipe Fitting Insulation; White Base Color; Mud; Magnesium Based Dilution

This friable material was analyzed by the laboratory as containing 45% Chrysotile asbestos fibers. One sample of this matrix was collected.

This material was found through the crawl space area in association with domestic or steam water lines. This material was also found in the debris form on the soil. It was noted that this material may exist in penetrations into above flooring feeding to radiators that use to exist in the structure, as well as into the foundation.

Overall, the condition of this material was in poor condition with loss of cohesive properties and material integrity. Until demolition occurs, current potential disturbances are as noted:

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

An estimated 20 visible fittings exist in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Fire Door 1 (FD 1) – Encased Material; Door Insulation

This friable material was analyzed by the laboratory as containing 6% Chrysotile asbestos fibers. One sample of this matrix was collected.

This material was found through in a salient building associated with the safe area.

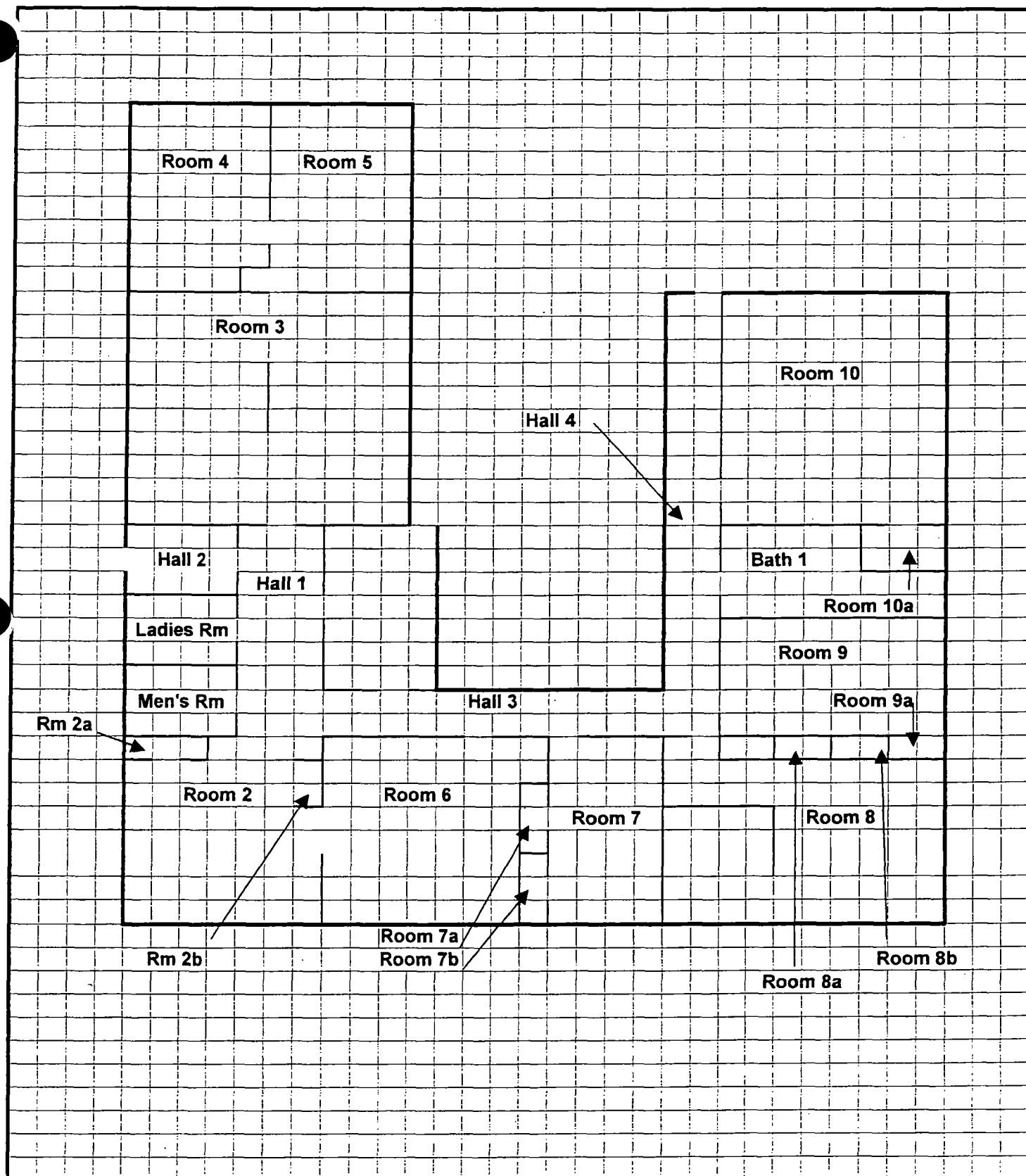
Overall, the condition of this encased material was good condition. Until demolition occurs, current potential disturbances are as noted:

- ◆ Air – High
- ◆ Vibration – Moderate
- ◆ Contact – Low
- ◆ Water – High

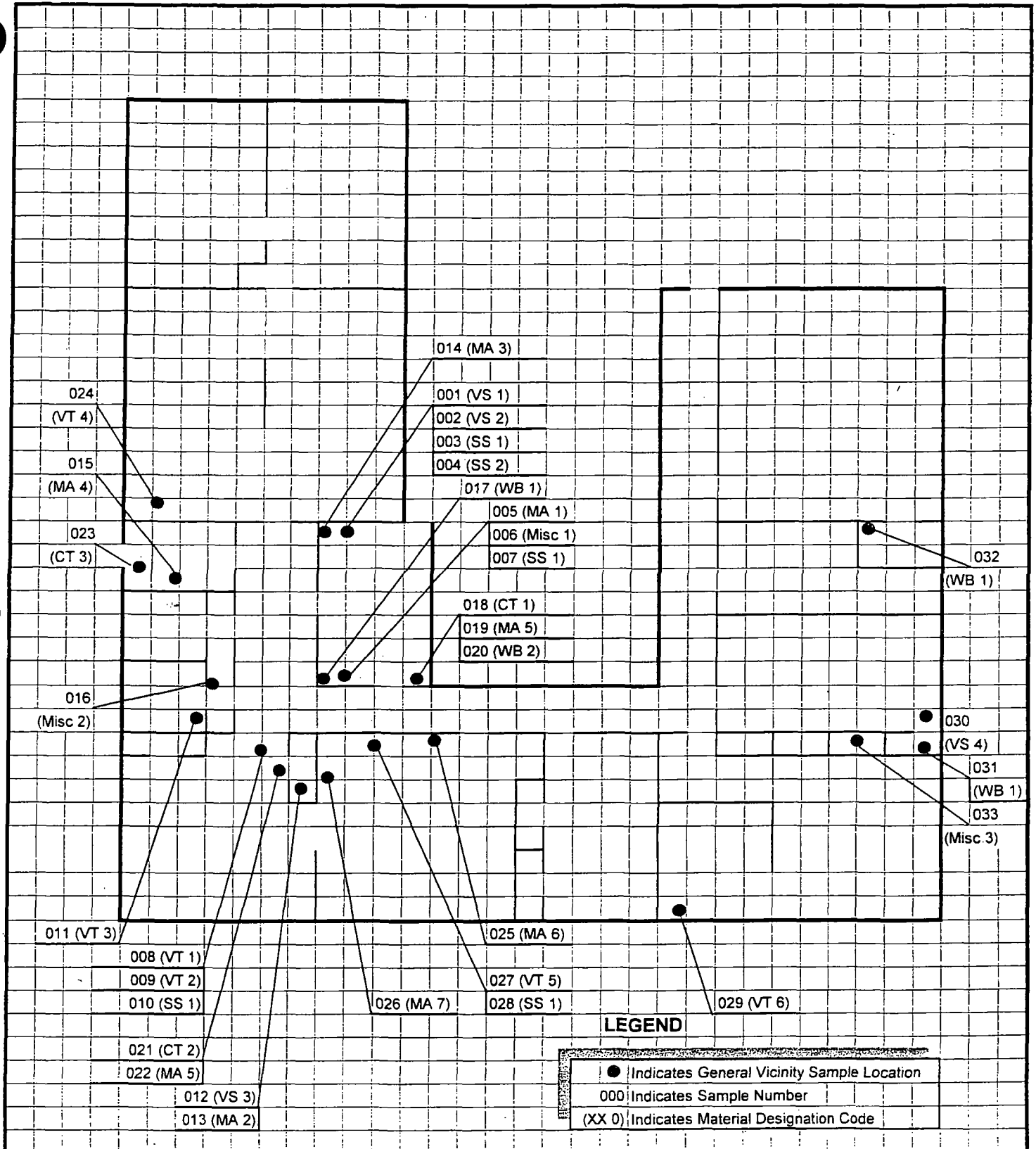
One door exists in the location mentioned. This material will be impacted resulting from demolition activities and must be handled and removed in accordance with federal, state, and local regulations.

Inspection Statement of Materials Found Negative

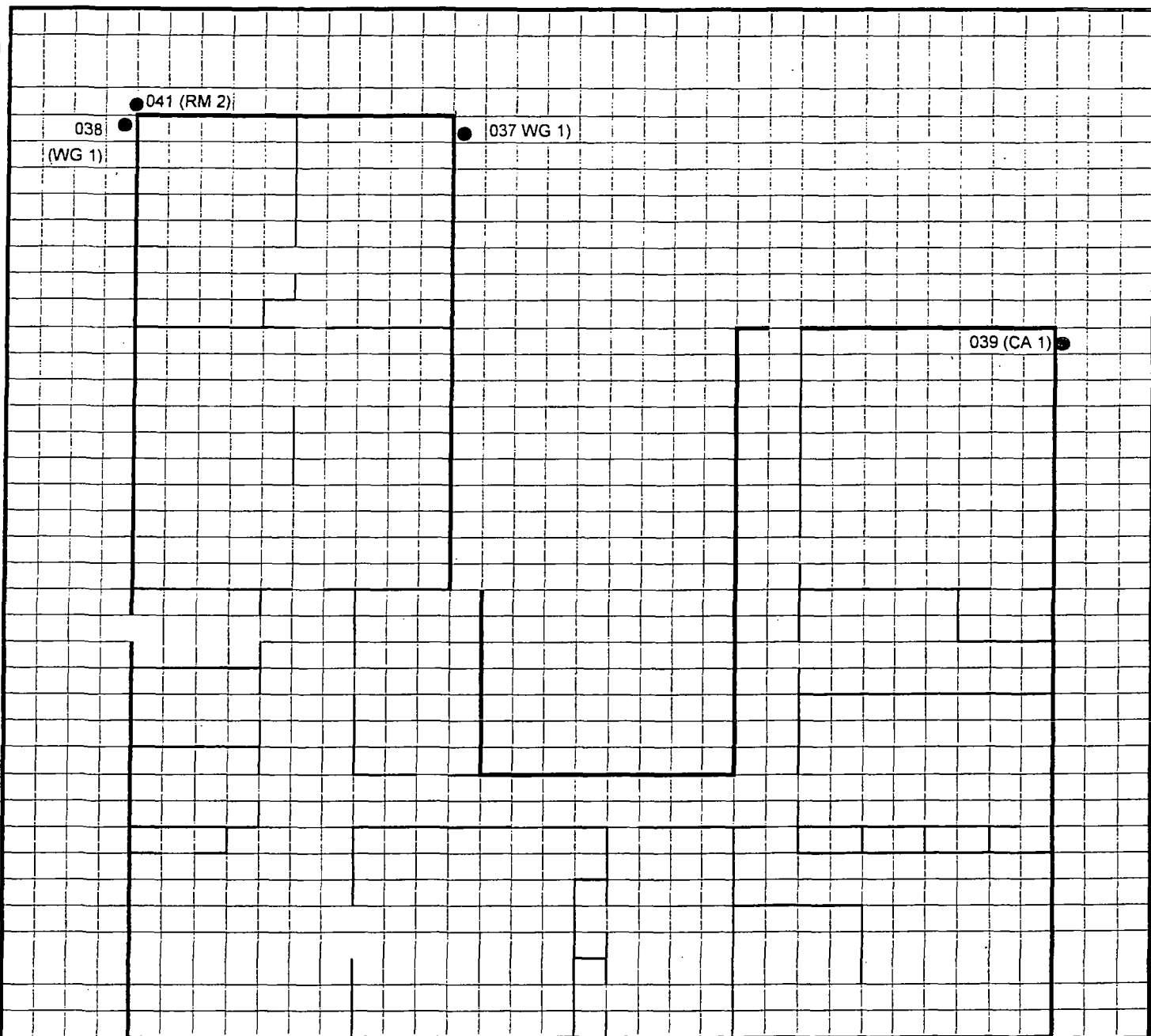
Upon completion of the field investigation, review of field notes, and review of laboratory data, all other suspect materials identified and in association with this structure were non-detect for asbestos.



Building Number 300 Middle Waterway		Location or Area Utilization Office Building Room Identification		Direction North ←
Drawn By Craig Thomas	Project Number 99196	Date March 5, 1999	Time 0900 hrs	



Building Number 300 Middle Waterway		Location or Area Utilization Office Building Interior Sample Location		Direction North ←
Drawn By Craig Thomas	Project Number 99196	Date March 5, 1999	Time 0900 hrs	



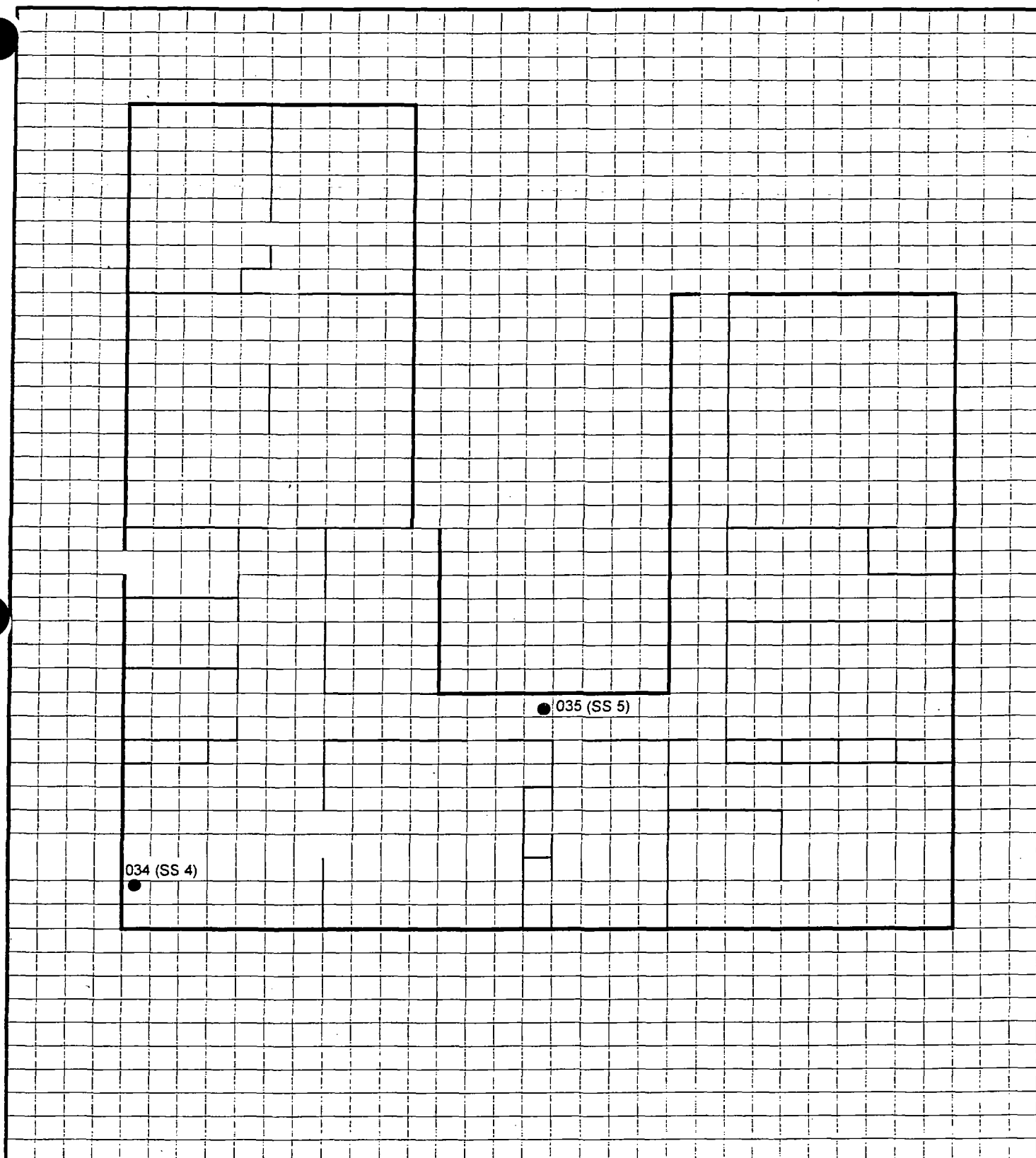
LEGEND

●	Indicates General Vicinity Sample Location
000	Indicates Sample Number
(XX 0)	Indicates Material Homogeneity Code

NOTES

1. Sample 040 (RM 1) Collected on Flat Roof at North Wing
2. Sample 043 (RM 3) Collected on Concrete North of North Wing

Building Number		Location or Area Utilization		Direction North	
300 Middle Waterway		Office Building Exterior Sample Location		←	
Drawn By		Project Number	Date	Time	
Craig Thomas		99196	March 5, 1999	0900 hrs	



Building Number	Location or Area Utilization			Direction North
300 Middle Waterway	Office Building Attic Sample Location			←
Drawn By	Project Number	Date	Time	
Craig Thomas	99196	March 5, 1999	0900 hrs	

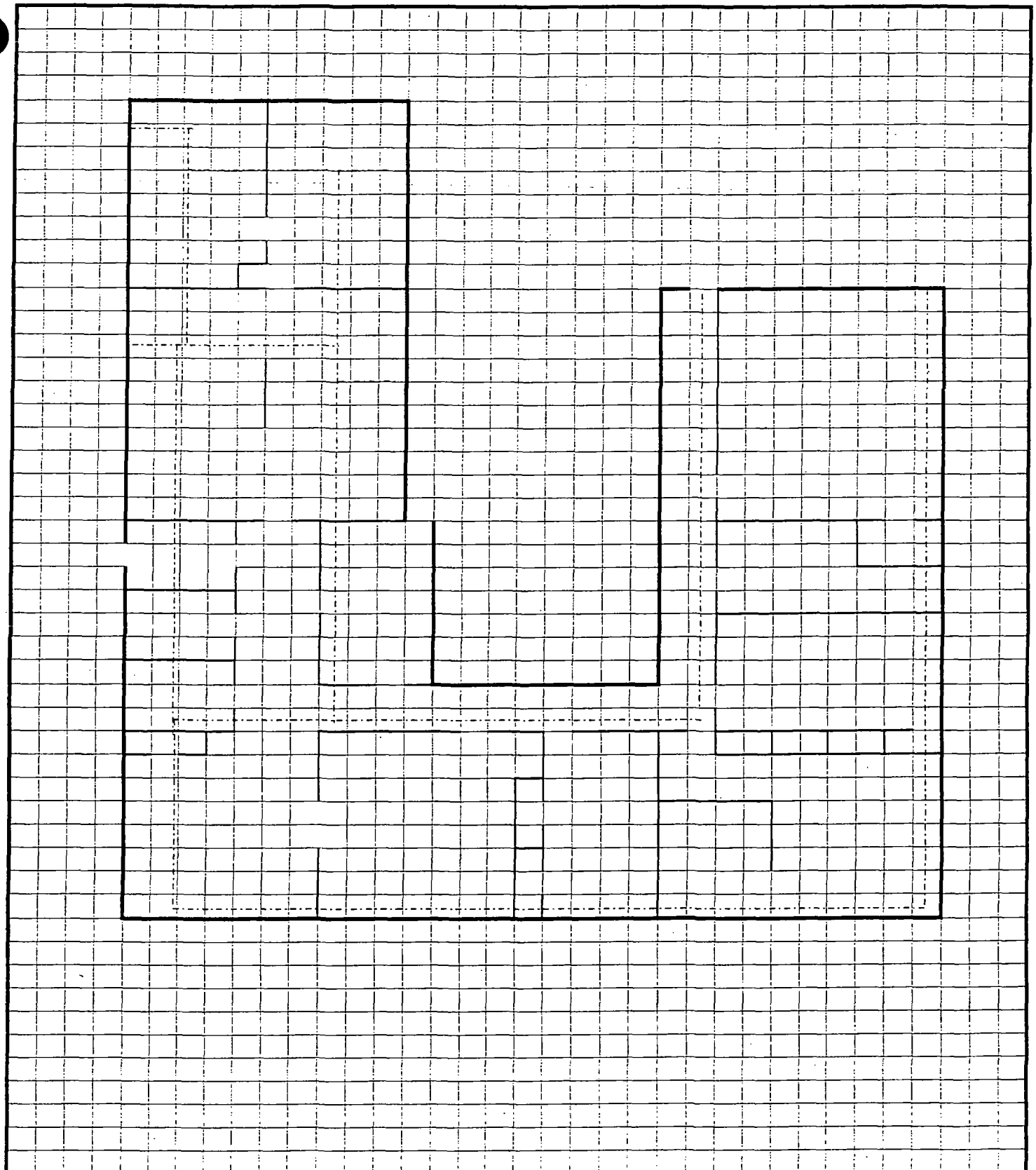
ORION Environmental Services, Inc.

34004 9th Avenue South; Building A, Suite 5; Federal Way, Washington 98003-6740

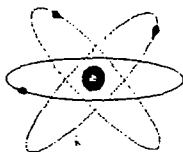
Telephone Seattle (253) 874-8118 Tacoma (253) 952-6717 Facsimile (253) 927-4714

Project Name Simpson Timber Company

Property Acquisition - 11 Buildings



Building Number	Location or Area Utilization			Direction North
300 Middle Waterway	Office Building Crawl Space Pipe Location (Estimated)			←
Drawn By	Project Number	Date	Time	
Craig Thomas	99196	March 5, 1999	0900 hrs	



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PLM TEST REPORT

EPA Method 600/R-98/116

Client: Simpson Timber Company

801 Portland Avenue

Tacoma, WA 98401

Attn: Mickey Prendes

Site Location: 300 Middle Waterway

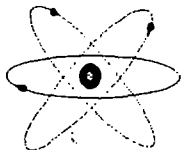
Date: March 2, 1999

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Invoice 99196

Date Received: February 25, 1999

<u>CLIENT NUMBER</u>	<u>ORION NUMBER</u>	<u>STEREO SCOPE EXAM</u>	<u>SAMPLE TREATMENT</u>	<u>ASBESTOS %</u>	<u>TYPE</u>	<u>OTHER FIBERS</u>
300-001(a) Room one	0225-01(a)	Vinyl Sheeting Brown & Gray Homogeneous	Ash	ND	-	-
300-001(b) Room one	0225-01(b)	Gray Felt Backing Homogeneous	-	ND	-	Cellulose
300-001(c) Room one	0225-01(c)	Tan Mastic Assoc. w/300-001(a) Homogeneous	Chloroform	ND	-	Cellulose
300-002(a) Room one	0225-02(a)	Vinyl Sheeting Gray Homogeneous	Ash	ND	-	-
300-002(b) Room one	0225-02(b)	Gray Felt Backing Homogeneous	-	45	Chrysotile	Cellulose
300-002(c) Room one	0225-02(c)	Mastic Assoc. w/300-002(a) Homogeneous	Chloroform	ND	-	Cellulose
300-003 Room one	0225-03	Slip Sheeting Black w/ Assoc. Mastic Homogeneous	Chloroform	ND	-	Cellulose
300-004 Room one	0225-04	Slip Sheeting Black Homogeneous	-	ND	-	Cellulose
300-005 Room one	0225-05	Tan Carpet Mastic Homogeneous	Chloroform	ND	-	Cellulose
300-006 Room one	0225-06	Leveling Compound Homogeneous	-	ND	-	Cellulose



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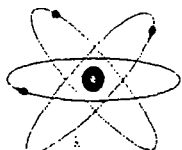
Date: March 2, 1999

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300-007 Room one	0225-07	Slip Sheeting Blue/Gray Homogeneous	-	ND	-	Cellulose
300-008(a) Room two	0225-08(a)	Carpet Mastic Homogeneous	Chloroform	ND	-	Cellulose
300-008(b) Room two	0225-08(b)	Vinyl Tile Dark Brown Homogeneous	Ash	7	Chrysotile	-
300-008(c) Room two	0225-08(c)	Black Mastic Assoc. w/300-008(a) Homogeneous	Chloroform	2	Chrysotile	Cellulose
300-009 Room two	0225-09	Vinyl Tile w/Burlap & Assoc. Mastic Non-Separable	Ash	ND	-	Cellulose
300-010 Room two	0225-10	Slip Sheeting Black w/ Assoc. Mastic Non-Separable	Ash	ND	-	Cellulose
300-011(a) Room two	0225-11(a)	Vinyl Tile Cream Homogeneous	Ash	ND	-	-
300-011(b) Room two	0225-11(b)	Black Mastic Assoc. w/300-011(a) Homogeneous	Chloroform	3	Chrysotile	Cellulose
300-012(a) 2-B	0225-12(a)	Vinyl Sheeting Brown & Tan Homogeneous	Ash	ND	-	-
300-012(b) 2-B	0225-12(b)	White Felt Backing Homogeneous	-	25	Chrysotile	Cellulose



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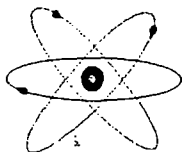
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300-012(c) 2-B	0225-12(c)	Tan Mastic Assoc. w/300-012(a)	Chloroform	ND	-	Cellulose
300-013 2-B	0225-13	Cove Base Mastic Brown Homogeneous	Chloroform	5	Chrysotile	-
300-014 Room one	0225-14	Cove Base Mastic Brown Homogeneous	Chloroform	5	Chrysotile	-
300-015 Hall 2	0225-15	Laminate Mastic Brown Homogeneous	Chloroform	ND	-	Cellulose
300-016 Bath Hall	0225-16	Fiberboard Homogeneous	Ash	ND	-	Cellulose
300-017(a)	0225-17(a)	Skim Coat Homogeneous	-	ND	-	Cellulose
300-017(b)	0225-17(b)	Wallboard Homogeneous	-	ND	-	Cellulose
300-018	0225-18	Ceiling Tile Homogeneous	Ash	4	Chrysotile	Cellulose
300-019 Hall 2	0225-19	Brown Mastic Assoc. w/Ceiling Homogeneous	Chloroform	ND	-	Cellulose
300-020 Room one	0225-20	Wallboard Homogeneous	-	ND	-	Cellulose
300-021 Room two	0225-21	Ceiling Tile Homogeneous	Ash	4	Chrysotile	Cellulose



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PLM TEST REPORT

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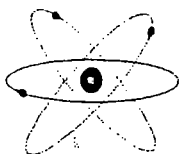
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300-022 Room two	0225-22	Brown Mastic Assoc. w/ Ceiling Homogeneous	Chloroform	2	Chrysotile	Cellulose
300-023 Hall two	0225-23	Ceiling Tile Homogeneous	Ash	2	Chrysotile	Cellulose
300-024 Room three	0225-24	Vinyl Tile Cream Homogeneous	Ash	ND	-	Cellulose
300-025 Room six	0225-25	Wood Panel Mastic Brown Homogeneous	Chloroform	ND	-	Cellulose
300-026 Hall three	0225-26	Wood Panel Mastic Tan Homogeneous	Chloroform	ND	-	Cellulose
300-027(a) Room six	0225-27(a)	Carpet Mastic Homogeneous	Chloroform	ND	-	Cellulose
300-027(b) Room six	0225-27(b)	Vinyl Tile Green w/Streaks Homogeneous	Ash	5	Chrysotile	-
300-027(c) Room six	0225-27(c)	Mastic Assoc. w/300-027(a) Homogeneous	Chloroform	3	Chrysotile	Cellulose
300-028 Room six	0225-28	Slip Sheeting Black w/ Assoc. Mastic Non-Separable	Ash	ND	-	Cellulose
300-029(a) Room eight	0225-29(a)	Carpet Mastic Tan Homogeneous	Chloroform	ND	-	Cellulose



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801 Portland Avenue

Tacoma, WA 98401

Attn: Mickey Prendes

Site Location: 300 Middle Waterway

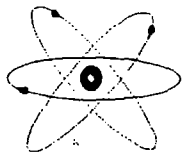
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300-029(b) Room eight	0225-29(b)	Vinyl Tile Gray Homogeneous	Ash	5	Chrysotile	-
300-029(c) Room eight	0225-29(c)	Mastic Assoc. w/300-029(a) Homogeneous	Chloroform	2	Chrysotile	Cellulose
300-030(a) Room nine	0225-30(a)	Vinyl Sheeting Brown & White W/Gray Felt Backing Non-Separable	Ash	ND	-	-
300-030(b) Room nine	0225-30(b)	Tan Mastic Assoc. w/300-030(a) Homogeneous	Chloroform	ND	-	Cellulose
300-031 9-A	0225-31	Wallboard Homogeneous	-	ND	-	Cellulose
300-032(a) 10-A	0225-32(a)	Skim Coat Homogeneous	-	ND	-	Cellulose
300-032(b) 10-A	0225-32(b)	Wallboard Homogeneous	-	ND	-	Cellulose
300-033 8-B	0225-33	Sink Coat Black Homogeneous	Chloroform	10	Chrysotile	Cellulose
300-034 Attic	0225-34	Slip Sheeting Black Felt w/Asphalt Homogeneous	Ash	5	Chrysotile	Cellulose
300-035 Attic	0225-35	Slip Sheeting Silver Homogeneous	Ash	ND	-	Cellulose



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Tacoma, WA 98401

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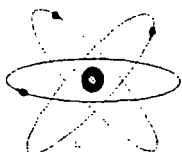
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300-036 Exterior	0225-36	Slip Sheeting Black Homogeneous	Ash	3	Chrysotile	Cellulose
300-037 Exterior	0225-37	Window Glazing Homogeneous	Ash	ND	-	-
300-038 Exterior	0225-38	Window Glazing Homogeneous	Ash	ND	-	-
300-039 Exterior	0225-39	Caulking Homogeneous	Ash	ND	-	-
300-040(a) Exterior	0225-40(a)	Roofing 1 st Layer Homogeneous	Ash	ND	-	Cellulose Fiberglass
300-040(b) Exterior	0225-40(b)	Roofing 2 nd Layer Homogeneous	Ash	5	Chrysotile	Cellulose Fiberglass
300-040(c) Exterior	0225-40(c)	Roofing 3 rd Layer Homogeneous	Ash	ND	-	Cellulose Fiberglass
300-041(a) Exterior	0225-41(a)	Felt Homogeneous	Ash	ND	-	Cellulose Fiberglass
300-041(b) Exterior	0225-41(b)	3-Tab Roofing Homogeneous	Ash	5	Chrysotile	Cellulose
300-041(c) Exterior	0225-41(c)	Felt Homogeneous	Ash	3	Chrysotile	Cellulose
300-042(a) Exterior	0225-42(a)	Roofing Core 1 st Layer Homogeneous	Ash	20	Chrysotile	Cellulose



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PLM TEST REPORT

EPA Method 600/R-98/116

Client: Simpson Timber Company

801 Portland Avenue

Tacoma, WA 98401

Attn: Mickey Prendes

Site Location: 300 Middle Waterway

Date: March 2, 1999

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Invoice 99196

Date Received: February 25, 1999

<u>CLIENT NUMBER</u>	<u>ORION NUMBER</u>	<u>STEREO SCOPE EXAM</u>	<u>SAMPLE TREATMENT</u>	<u>ASBESTOS %</u>	<u>TYPE</u>	<u>OTHER FIBERS</u>
300-042(b) Exterior	0225-42(b)	Roofing 2 nd Layer Homogeneous	Ash	35	Chrysotile	Cellulose
300-042(c) Exterior	0225-42(c)	Roofing 3 rd Layer Homogeneous	Ash	ND	-	Cellulose Fiberglass
300-042(d) Exterior	0225-42(d)	Roofing 4 th Layer Homogeneous	Ash	ND	-	Cellulose Fiberglass
300-043 Crawl Space	0225-43	Pipe Insulation Homogeneous	-	25	Chrysotile	Cellulose
300-044 Crawl Space	0225-44	Pipe Insulation Homogeneous	-	45	Chrysotile	Cellulose
300-045 Crawl Space	0225-45	Pipe Insulation Homogeneous	-	35	Chrysotile	Cellulose
300-46	0225-46	Pipe Insulation Homogeneous	-	6	Chrysotile	Cellulose Fiberglass

Dup: Laboratory QA/QC Duplicate; M: Mastic; ((a), (b), (c), etc.): Sample Layers, numbered from front to back.

Comments: For layered samples, each component has been analyzed separately. Disclaimers: PLM has been known to miss asbestos in a small percentage of samples that contain asbestos. Thus, negative PLM results cannot be guaranteed. This report may only be reproduced in full with written approval of Orion Laboratories.

By:

Donna McNeal
→ Donna McNeal

Laboratory Director

Member: AOAC, ACS, AIHA

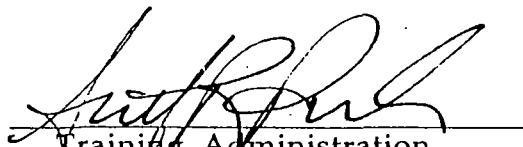
Certificate of Completion

This is to certify that
Craig Thomas
has satisfactorily completed
24 hours of training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title II / 40 CFR 763 (AHERA)

Certificate Number (b)(6)


Training Administration
AHERA Certified

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Jul 8 - 10, 1998
Date(s) of Training
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422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

General Conditions – PCG Corporate Policy for Safety



CORPORATE POLICY

POLICY NO. PCG-101

DATE: September 1, 1993

SUBJECT: SAFETY

BACKGROUND

The accident prevention programs of Performance Contracting Group, Inc. have been developed to eliminate or mitigate the potential of events that could produce injuries, or interrupt production, or damage equipment or materials, destroy assets, or escalate the cost of doing business..

Performance Contracting Group, Inc. has a high level of concern for the prevention of all accidents related to its' operations. Establishment of a safe environment will contribute to the protection of, and the health and well being of employees and others, and to the conservation of Corporate assets from losses caused by accidents.

The intent of this policy is to ensure that Performance Contracting Group, Inc. is in compliance with all Federal, State, and Local regulations.

POLICY

It is the policy of Performance Contracting Group, Inc. that the prevention of occupational injuries and illnesses will be given priority equal with productivity, quality, and related corporate efforts.

Consistent with accepted safety standards, Performance Contracting Group, Inc. will provide employees a safe place to work.

The maintenance of a safe working environment is the responsibility of every employee. Performance of management positions relative to safety shall be included in their "Standards of Performance" and weighted with other standards in evaluating their personal achievement.

RESPONSIBILITY

1. Officers: shall be responsible for assuring the full implementation of this policy and all corporate accident prevention programs.
2. Operations Managers: shall be responsible for assuring that Branch Managers and Area Managers have well organized accident prevention plans.
3. Branch/Area/Project Managers: shall assume the direct responsibility for the implementation of the "Accident Prevention Plan".

4. Field Superintendents, General Foremen & Foremen: shall enforce safety rules/regulations and procedures, conduct safety meetings, promptly investigate accidents, submit written reports as established in the Accident Prevention Plan Manual and perform safety inspection responsibilities.
5. Employees: shall share in the responsibility for contributing to the establishment of an accident free environment by following established safety rules and operating procedures, reporting unsafe conditions and accidents, and conducting themselves in a way that enhances their personal safety and the safety of others.

Written by: D. G. Haden
Approved by: M. M. Matthews

ISSUED BY CORPORATE PLANNING

updated
7/3/89

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422- S. Forest Street Seattle, WA 98134 Telephone (206) 467-8733

THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 1.10 Daily Report Form



ASBESTOS ABATEMENT QUALITY CONTROL REPORT

Thea Foss Waterway Remediation Project –300 Middle Waterway Building

Report No.: _____ Day: _____ Date: _____ Crew Size: _____

Location of Work: _____

Asbestos Contractor: **PERFORMANCE ABATEMENT SERVICES, INC.**

Certified Asbestos Supervisor: _____

▪ DAILY CHECKLIST

DID ASBESTOS REMOVAL OCCUR ON THIS DATE?

• Yes

• No

Regulated Area Established

Barrier Tape Around Area	• Yes	• No
Warning Signs Posted At Entrances	• Yes	• No

Temporary Enclosure

Area Heating/Ventilation Off	• Yes	• No
Enclosure Smoke Tested	• Yes	• No
Floors Covered (Where Applicable)	• Yes	• No
Walls Covered (Where Applicable)	• Yes	• No
All Edges Sealed	• Yes	• No
Penetrations Sealed	• Yes	• No
Decontamination Enclosure Attached	• Yes	• No
Air Filtration Devices Operating	• Yes	• No
Differential Pressure Achieved	• Yes	• No
Recording Manometer In Operation	• Yes	• No

Electrical

All Wiring Checked For Live Voltage	• Yes	• No
Workers Protected From Live Voltage	• Yes	• No

Work Practices

Asbestos Material Worked Wet	• Yes	• No
Removed Material Promptly Bagged	• Yes	• No
Bags Properly Labeled and Sealed	• Yes	• No
HEPA Vacuums Used	• Yes	• No
Removed Ballasts Promptly Dumped	• Yes	• No

Work Practices (Continued)

Sheet 1 of 2



Waste Bags Properly Labeled and Sealed	• Yes	• No
Work Area Cleaned at End of Shift	• Yes	• No
Workers Decontaminating Properly	• Yes	• No
No Smoking/Eating/Drinking In Enclosures	• Yes	• No

Personal Protection

Medical Examination Current/Training & Fit Tests Current	• Yes	• No
Air Sampling Conducted and Posted	• Yes	• No
Disposable Clothing Worn Properly	• Yes	• No
Torn Clothing Replaced Promptly	• Yes	• No
Appropriate NIOSH Approved Respirators In Use	• Yes	• No
Respirators Inspected and Cleaned Daily	• Yes	• No
Hard Hats Worn Correctly (Where Applicable)	• Yes	• No

Decontamination

Showers Functioning Properly	• Yes	• No
Adequate Soap and Towels Available	• Yes	• No
All Workers and Visitors Showering Properly	• Yes	• No
Water Filtration System In Operation	• Yes	• No

Checklist Comments:

List all inspections performed

List amount of bagged/wrapped waste loaded :

Comments:

CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed on this day.

PAS' QC Representative: _____ Date: _____



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THEA FOSS AND WHEELER-OSGOOD WATERWAYS REMEDIATION PROJECT

Section 02080 Waste Disposal Manifest form for Asbestos Waste

WASTE SHIPMENT RECORD

G E N E R A T O R	1. Work site name and mailing address		Owner's name		Owner's telephone no.	
	2. Operator's Name and address Asbestos Contractor Performance Abatement Services, Inc. 422 S. Forest St. Seattle, WA 98134		Job No.		Operator's telephone no. 206-467-8733	
	3. Waste disposal site (WSD) name, mailing address and physical site location GREATER WENATCHEE REGIONAL LANDFILL + Recycling 191 S. WEBB RD. DOUGLAS COUNTY, WA 98807				WDS telephone no. 509-662-4591	
	4. Name and address of responsible agency					
	5. Description of materials		6. Containers No. Type		7. Total quantity M ³ (yd ³)	
T R A N S P O R T E R	8. Special handling instructions and additional information Wet and double bagged, labeled					
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are, in all aspects, in proper condition for transport by highway, according to applicable international and government regulations.					
	Printed/typed name and title		Signature		Month / Day / Year	
	10. Transporter 1 (Acknowledgment of receipt of materials)					
	Printed/typed name and title		Signature		Month / Day / Year	
D I S P O S A L	Address and telephone no.					
	11. Transporter 2 (Acknowledgment of receipt of materials)					
	Printed/typed name and title		Signature		Month / Day / Year	
	Address and telephone no.					
	12. Discrepancy Indication space					
D I S P O S A L	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.					
	Printed/typed name and title		Signature		Month / Day / Year	